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STEAM NAVIGATION, COMMERCE, MINING, MANUFACTURES.

HENRY V. POOR, Editor.

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PRINCIPAL CONTENTS.

American Railroad Journal.

Saturday, November 8, 1851.

Pittsburg and Steubenville Railroad.

Messrs. D. Mitchell, Jr., and W. Milnor Roberts, the former Chief, and the latter Consulting Engineer of the above road, have published in the Pittsburg papers, the substance of their preliminary survey of the above line. Two favorable routes are fount to exist. The distance by the longest, called the Chartier's Creek route, is 44 miles; by the shortest, called the Saw Mill Run route, 42 miles.

We copy the following from the report in reference to the general characteristics of the routes:—

The minimum radius of curvature, which will only be required for short distances at each end, in approaching the bridges, will be about 1000 feet. Generally, the radii of the curves will be 2000 feet or more.

The maximum grade required, will be 52 8-10 feet per mile, but a large portion of the route will be less than 30 feet per mile.

The principal bridges will be at the crossing of the Monongahela and Ohio rivers. There is no difficulty in constructing a bridge over the Monongahela, and making a direct connection with the Pennsylvania Central railroad at a moderate cost. It will require further and careful examination to determine the best mode of effecting this connection; of which we will be prepared to speak in detail hereafter.

In reference to bridging the Ohio we give the following:—

We have examined two proposed crossings of the Ohio at Steubenville; one directly opposite the town, about 1000 feet long, and the other about a mile higher up, requiring a bridge about 1200 feet long.

No railroad bridge has ever been erected over the Ohio river. On the subject of bridging this river, we shall present our views cheerfully, and with entire confidence that future events will sustain them.

In the first place, it is, we believe, universally conceded, that the best site for a high railroad bridge anywhere along the Ohio river, is at Steubenville; owing to the fact that the stream is narrow and the banks rising rapidly on *both* sides. In the next place, the Steubenville and Indiana railroad company have found no difficulty in locating their line in such a manner that it can be readily connected with a bridge at an elevation of 120 feet above the water—the height at which our grade line has been assumed.

A substantial, reliable, and entirely sufficient railroad bridge can be built at this favorable location, at much less expense than has been generally supposed. We are fully satisfied that such a bridge can be erected with a guaranty against any defect on account of want of strength, from the most extensive and experienced bridge builders in the United States. It will not, at this point, require a very extraordinary expenditure; and in our opinion, from the peculiar location, and the circumstances surrounding the question of a bridge at Steubenville, this structure should not be regarded by your company as a serious obstacle to the consummation of your project. The Steubenville and Indiana company, together with the citizens of Steubenville, (a flourishing and wealthy city numbering nearly 10,000 inhabitants) and thousands of others through the country on both sides of the river, are deeply interested in this bridge matter; and by a judicious union of interests, and harmonious action, a permanent bridge, free from any sound objection from any quarter, that will accommodate both railroad and ordinary travelling, can be secured, without involving an investment on the part of your company, of more than eighty or ninety thousand dollars.

The report estimates that the whole road wil not cost over $20,000 to the mile. This is a good evidence that the route is a good one.

We give the following extract from the report in which the advantages of this route are contrasted with its various rival routes:—

As the shortest and most direct communication of the Pennsylvania Central railroad towards Columbus, Cincinnati, and the great producing regions in Ohio and other States of the west and south west, its proper location is interesting not only to the people on its route, but to thousands both east and west, who are to be directly and incidentally connected with it.

The local trade and travel of the rich country through which it will pass, will be heavy, and a large through business from the east and from the west, passing over the entire length of the Pennsylvania railroad, may fairly be anticipated, and indeed, confidently calculated upon.

It is a link, short,—but from its position entitled to high consideration, that will form a part of the shortest and best practicable railroad route between Philadelphia and Columbus; and the shortest outlet for the immense trade and travel that may be there concentrated. It is contemplated also, to extend the Steubenville and Indiana railroad (in addition to their line to Newark) through Mount Vernon to Marion, on the Bellefontaine and Indiana railroad; thus coming in direct connection with the great back bone line leading out to Indianapolis, Terre Haute, and St. Louis, and uniting with that vast net work of railroads, draining the most magnificent agricultural region in the world.

If Philadelphia is seeking the best connection with Columbus, the great concentrating point for an immense business south and south west of it, this is the route through which to atiain it. We state this without fear of refutation, notwithstanding the bold and sweeping assertions which have been so frequently published within the past few months by the friends of the Hempfield road.

Compare the routes:

Distances from Philadelphia to Columbus by way of the Hempfield railroad.

Philadelphia to Greensburgh	322 miles.
Greensburgh to Wheeling	78 "
Wheeling to Zanesville	94 "
Zanesville to Columbus	59 "
	553 miles.

Distances from Philadelphia to Columbus by way of Pittsburgh.

Philadelphia to Pittsburgh	353 miles
Pittsburgh to Steubenville	42 "
Steubenville to Columbus	114 "
Newark to Columbus	33 "
	542 miles.

Difference 11 miles in favor of the Pittsburgh route, with maximum grades of 52 8-10 feet instead of 66 feet per mile as fixed by the Engineer on the Hempfield line.

The Rapids Convention.

The convention for the improvement of the navigation of the Mississippi river met at Burlington, Iowa, on the 23d ult., and organised by the choice of Gov. Hempstead, of Iowa, President. A very large number of delegates were in attendance.—We hope to get a copy of its proceedings in season for our next number.

Report of the Chief Engineer of the Baltimore and Ohio Railroad.

THOMAS SWANN, Esq., *President:*

Sir—In submitting my present annual report, I am enabled to say, that during the year just ended, the progress of the work in charge of my department has been as successful as could reasonably have been expected. In the following brief statements, I adhere to the division of the subject pursued in my report of last year:

DESCRIPTION OF WORK UNDER CONTRACT.

Graduation and Masonry.—Summing up what is said under this head in the report of a year ago, I have to state, that, in addition to the four lettings of work which at that date had taken place—viz in April, 1849, of 20 Sections—in July, of 24—in September of the same year, of 58, and in June of the following year, of 65 Sections, making 167 in all, there was a fifth and final letting in last December of 33 Sections, which covered the remainder of the line from Cumberland to Wheeling, forming a total of 200 Sections, the number of which agrees with the distance in miles between those points.*

The work contracted for at these lettings has embraced, under the head of "Graduation," the usual variety of earth and rock excavations, including, besides many deep cuts and fills, 12 tunnels, from 180 to 4,100 feet long, and of a total length of about 10,500 feet, or very nearly 2 miles—and the dry masonry of the culverts, drains and retaining walls accompanying grading of that character,—and under the head of "Masonry," 114 bridges, [23 arched and 91 rectangular,] of spans from 10 to 200 feet, chiefly of the smaller dimensions. The preceding work was all disposed of by public letting to the lowest suitable bidders.

Bridge Superstructures.—The timber for such of these as are constructed partly of wood has been obtained by contract with various persons near the line, and the iron work of those consisting wholly or in part of that material is being prepared in the Company's shops at Mount Clare.

Railway Tracks.—Under this head the *Ballast* and *Crosstues* have been contracted for from time to time as was required to provide them in season for the laying of the rails. The ballast is supplied chiefly by the Graduation Contractors, who have evident facilities for furnishing it more cheaply than others. The cross-ties have been delivered mostly by owners of timber land in the neighborhood. The *rails* were imported from England under a contract [now complete] with Baring Brothers for 22,000 tons of the T pattern, 60 lbs. per yard. The *chairs* or joint-plates of wrought iron are being made in the Company's shops, out of iron imported by contract with Joshua Hartshorne, Esq.,—and the *spikes* are furnished under a contract with Messrs. Smith & Tyson of this city. The track is laid by workmen employed by the Company under the superintendence of Mr. Roseby Carr, so long Supervisor of the Division of the road near Baltimore, and so well known for his experience and energy.

Depot Buildings.—The few structures required under this head at the first opening of the road are being built, in part, of materials furnished by contract—and in part supplied from the Company's shops.

Water Stations.—The same remark is applicable to this branch of construction. Most of the work however is done by the day, to insure the faithful execution essential in all hydraulic works.

COST OF THE WORK UNDER CONTRACT.

Graduation and Masonry.—As stated under this head, in my report of last year, the cost of the work embraced in the 167 Sections of the four previous lettings was $2,890,753, as estimated at the prices proposed. The fifth letting in December last, of the 32 additional Sections, added to this the the sum of $802,560, similarly estimated—making a total of $3,693,313—for the 199 Sections, and which by the addition of $20,040 for the 200th Section in Wheeling, makes $3,713,353. The cost of the work included in these lettings, as estimated by this department, was $4,626,819, and the comparison of these two amounts would shew an apparent saving of $913,466. The whole of this saving cannot however be realized, as much of the work, has had to be re-let at reduced prices.

The changes also in the location of the first thirty miles of the road and the enlargement of the principal bridges, necessitated by the arrangements with the canal company, for the right of way along the Potomac River, subsequent to the estimates referred to, have added heavily to the cost of the first division. Nevertheless I still entertain the belief that the liberal allowances made upon the other divisions in the quantities of excavation, embankment and masonry, will keep the excess of actual over contract cost within narrow limits, and indeed in view of the savings in the items of tunnel masonry and railway tracks, I have scarcely a doubt that the margin allowed for contingencies in the revised estimate last submitted to you will be found sufficient.

The estimate just referred to was as follows:—

Graduation and masonry,	$3,878,452
Bridge superstructures	170,000
Railway tracks	1,658,250
Depot and water stations	105,750
Right of way	100,000
Superintendence and contingencies, 5 per cent. on the above	297,872
Total—not including tunnel masonry	$6,210,324
The cost of tunnel masonry was estimated at	250,000
Making the total estimated cost	$6,460,324

At the original contract prices for the graduation and masonry. It was and still is expected that the item of tunnel masonry, or much the larger part of it, may be saved till after the opening of the road—and some of it altogether.

PROGRESS OF THE CONSTRUCTION.

The fact that the rails are now laid and the trains regularly running [over the Crab-tree grades] to beyond the crossing of the Youghiogheny river 55 miles from Cumberland, and about the centre of the Glades, shows that the grading and masonry of the road-bed must be finished to that point. There is some work left to be done on this part of the road—but it is of inconsiderable amount, and chiefly consists of what remains to carry the track through the cut on the 21st Section at its proper grade, [a summit surmounted by inclines readily passed by the trains, having been encountered there, in order to get the track on] and two short gaps in embankments upon the 45th and 47th Sections, now passed by substantial trestling—with the same object. The way is now nearly clear to Cheat river, 75 miles from Cumberland, although there are two or three points where slight detentions may occur in the advance of the track—which is expected to reach that river not later than the 1st of the coming December. This would be a month behind the time anticipated; but such have been the difficulties met in maintaining the necessary force upon the work, that it will appear to one familiar with them, rather a wonder that the point named could have been attained even at the later date; and when the magnitude of the work on these 75 miles, completed in two and a half years, is regarded, I am satisfied it will be admitted that a great deal has been accomplished. By the time the rails have reached Cheat river, the heavy sections lying within the next 12 miles, and including the Kingwood tunnel, will, it is hoped, be so well advanced as to permit the track to pass on with little interruption, and be pushed forward over the light grading beyond, along Raccoon and Three Forks creeks, to the Tygart's valley river bridge at Fetterman, 103¼ miles from Cumberland, by about the 1st of March next, and thence to Fairmont, 124 miles from Cumberland, by the ensuing 1st of May. There will then remain eight months of the year 1852 to reach Wheeling, 76 miles beyond Fairmont, and 200 miles from Cumberland, and that this can be accomplished without difficulty there need be no doubt. The road of 124 miles in length, will then have been three years in reaching Fairmont, about the time occupied ten years since in making it from Harper's Ferry to Cumberland, with this difference, however, in the circumstances, that in the case of the road east of Cumberland men were superabundant, and the work had rather to be kept in check; while in that of the new road, labor, after the first year, has been extremely difficult to procure. With an unlimited supply of hands, the work, which will have been upwards of three and a half years in construction from Cumberland to Wheeling, could have readily been done in less than three years.

It seems scarcely necessary to notice the state of the work at particular places after the account just given of its expected rate of advance from point to point, and especially in view of the very full description of all the prominent features of the line in my last annual report. It will be seen that the time set for the opening of the road to its terminus at Wheeling is not varied from that assumed in my letter of the 7th of April last, addressed to J. J. Turner, Esq., in reply to inquiries made by him by direction of the councils of the city. It has been necessary, however, to take a little indulgence in regard to the intermediate periods, for which I am sure I would have no difficulty in satisfying the board and the public that there are satisfactory reasons afforded by the actual occurrence of one of the contingencies under which I felt compelled to shield myself in making those conditional promises.

I have been, during the year just past, assisted in directing and pressing on the work by the several gentlemen mentioned in my last annual report, and whose unremitting attention to their arduous duties, deserves the highest praise. In maintaining order and suppressing intemperance upon the line, they have had to encounter much responsibility and some personal peril; and but for the courage and good conduct displayed on these occasions, aided by the armed and efficient police, which has been found indispensable, the work could not have proceeded with any degree of steadiness or rapidity. The commencement of surveys upon the Northwestern railroad, has provided immediate employment for most of those lately relieved from duty upon this line. Wm. H. Small, Esq., of the first division, after finishing his well performed duties here, has passed into that service, with his assistants, Messrs. G. H. Bryson and I. M. St. John, and some of the junior members of his party. Geo. Hoffman, Esq., of the second division, has furnished from his corps Mr. George W. Smith and Mr. John Dale, accompanied by Mr. Edmund O'Donnell, to the same service, which he will himself join, when prepared to retire from the position he has so ably filled on this work.

Which is respectfully submitted,

BENJ. H. LATROBE, Chief Eng.

* The 200th Section through the Streets of Wheeling—should be omitted.—It is not yet provided for, and reduces the number of Sections actually let, to 199. The Wheeling Section will be light.—It will extend the road to the Depot required by law, on the North Bank of Wheeling Creek.

Pennsylvania.

Catawissa, Williamsport and Erie Railroad.—The results that the opening of the Erie railroad has effected upon the course of trade has aroused our neighboring State of Pennsylvania to the importance of a similar connection with Lake Erie, and they are now bringing up the old Sunburry and Erie project with a good prospect of success. The lower portion of the road to the Lake is to be supplied by the Catawissa.

This road commences at the Beaver Meadow railroad, at a point four miles west of Lehigh canal, and terminates at the flourishing town of Williamsport, on the west branch of the Susquehanna river, the capital of the county of Lycoming, in the State of Pennsylvania, being a distance of ninety-three miles.

At the town of Williamsport it meets the Williamsport and Elmira railroad, seventy-six miles from the New York and Erie railroad, at the village of Elmira, where it joins the great line from New York to Dunkirk, on Lake Erie, under the name of the New York and Erie railroad.

A portion of the Williamsport and Elmira road, say twenty-six miles, is already finished and in ope ation, and the remaining fifty miles is under contract, to be finished in the beginning of the year 1852.

The Catawissa road has been graded for a dou-

ble track, from its eastern termination to the Susquehanna river, at the town of Catawissa, a distance of forty eight miles, at an expenditure of about $1,400,000, including $80,000, the cost of its coal lands, interest on former loans which have been converted into stock, right of way, and all other claims and settlement of accounts against the company, now represented by about 28,000 shares of stock, of $50 per share, making the sum of $1,400,000.

On leaving the junction with the Beaver Meadow railroad, the road will run for a long distance through the second great coal field of Pennsylvania, known as the Lehigh Coal Field. For the first 12 miles will be through lands owned by the company. From the natural configuration of the country, the above road must serve as the outlet for a very large area of coal field. The report estimates that upon the completion of the first 24 miles, the road would transport at least 270,000 tons of coal; which at three cents per ton per mile would yield a gross income of $194,400 or a net income of $129,600, estimating the cost of transportation at one cent per ton per mile.

Upon the completion of the road to Catawissa, the annual receipts are estimated at $343,500. In the neighborhood there are seventeen furnaces, besides other establishments which would require to supply them at least 150,000 tons per annum. The road would also be a route for the transportation of the products of these establishments to a market. In fine the entire country from Beaver Meadow junction to Catawissa possesses all the elements for an immense business.

We copy the following from the report in reference to the

BUSINESS RESOURCES OF THE ROAD, WHEN COMPLETED TO WILLIAMSPORT, WITH BRANCH TO DANVILLE.

Irrespective of any results to the Catawissa road, from its peculiar position for a successful coal trade, growing out of its proximity to the richest coal and iron fields in Pennsylvania, it forms a part of a great line, from the Lakes to Philadelphia, the distance of which, would be as follows:—

Dunkirk, on Lake Erie, by the New York and Erie railroad, to Elmira, finished in May, 1851	192	miles.
Elmira to Williamsport, by the Williamsport and Elmira railroad, (26 miles in operation,) and 50 miles under contract, to be completed in 1852.	76	"
Williamsport to Catawissa, about to be put under contract	45	"
Catawissa, to a point on the Catawissa, Williamsport and Erie railroad, called "Linders Gap," or "Tamanend."	38	"
From Tamanend, to Tamaqua, a part of the road in the charter of the company next named, surveyed	6	"
Tamaqua, to Port Clinton, laid with heavy iron, and in successful operation	21	"
Port Clinton, to Philadelphia, by the Reading railroad	78	"
The distance from Dunkirk to Phil.	456	miles.

The highest grade, from Williamsport to Philadelphia, coming east, is 35 feet to the mile.

It will be observed that the distance from Dunkirk to Philadelphia is 456 miles.

The New York and Erie railroad, from Dunkirk to New York, including 24 miles of the Hudson river, from Piermont is 470 miles.

It appears by a recent report from the Directors of the latter company, that its stock and debt is $20,500,000 of which $2,500,000 "is chargeable to equipment account," leaving $18,000,000 for cost of the road.

In the same report, the estimate of the profits to the stockholders in the year 1852, after paying the expenses of the road, and the interest on its debt, is put down "equal to 14¼ per cent. upon the capital stock now issued," and for the year 1853, the estimate upon the same basis is "equal to 17 per cent. upon capital issued."

It is confidently believed that the sources of *general business* to the line of road, of which the Catawissa forms a part, is quite equal to the New York and Erie, and there is, in addition, the business growing out of the vast trade in coal and iron, to supply as well the demand for consumption of the west as the east.

It will be noticed, by a preceeding statement, that the distance from Elmira to Philadelphia is 264 miles, and that from Elmira to Dunkirk is 192 miles. From Elmira to New York is 300 miles, and while the Catawissa road would derive the benefits of the Lake trade with Philadelphia, so by the following route it would also be benefitted by the trade to New York:—

Elmira to Williamsport, as in preceding statement	76	miles.
Williamsport to Catawissa, as in preceding statement	45	"
Catawissa, to junction with Beaver Meadow railroad	48	"
Beaver meadow road to Easton, [40 miles yet to be made]	56	"
Easton over Sommerville road, to Elizabeth Port	62	"
Elizabeth Port to New York	13	"
	300	miles.

Charters have been obtained and stock taken to complete the route, but money adequate to the completion of 40 miles of the same, would be required beyond that which would be required to finish the route to Philadelphia.

The immense resources of the west, and the magnitude of the trade through the great inland seas of that region, fostered and increased by means of railroads springing up, as if by magic, renders it certain that the New York and Erie railroad, with its single track only, aided, as it will be, by the Buffalo and Albany road, cannot supply the demands of travel and transportation to the sea board, and the outlet of that road at Elmira by the routes herein referred to, is called for by high public considerations, equally interesting to Philadelphia and New York, and the general interest of the trade and commerce of the world.

Having made a reference to the line of railroad from Buffalo to Albany, it may be proper to consider how far that line may furnish business to the route, of which the Catawissa forms a part.

From Buffalo to Canandaigua, is	104	miles.
From Canandaigua to Jefferson, the head of Seneca Lake, a railroad is in progress, and to be finished in some few months	46	"
Jefferson to Elmira, a road already in successful operation	21	"
	171	"
From Elmira to Philadelphia	264	"
Making from Buffalo to Philadelphia, via the Catawissa road	435	"
From Buffalo to Elmira, as above	171	"
From Elmira to New York, via the New York and Erie railroad	284	"
Making from Buffalo to New York by the last route	455	"

From Canandaigua, a distance of 28 miles, to Rochester, a railroad has been in operation for several years. From Rochester to Niagara Falls, a distance of seventy-four miles, a road has been in part constructed, and the remainder is under contract for construction, and will be finished in about one year, and is to be connected with the Niagara Suspension Bridge, and with the Canada railroads, leading to Detroit. The distance from Philadelphia to Niagara Falls, would be thus:

Philadelphia to Elmira	264	miles.
Elmira to Jefferson	21	"
Jefferson to Canandaigua	46	"
Canandaigua to Rochester	28	"
Rochester to Niagara Falls	74	"
Making from Philadelphia to Niagara Falls	433	"

As already stated the road is graded for a double track from the Beaver Meadow railroad to Catawissa, a distance of 48 miles. This cost is represented by 28,000 shares at $50 per share, making $1,400,000. It is estimated that $469,500 more will complete the road to the Susquehanna. From Catawissa to Williamsport the distance is 44¼ miles. The estimated cost of this section of the line with a branch to Danville of eight miles, $1,315,323, to this estimate is to be added the cost of the equipment, making the total cost of the whole road, $3,750,000.

The company propose to raise the balance necessary to complete the road, viz:—$2,350,000; First, by issuing bonds to the amount of $1,000,000, which will be sufficient for the purchase of the iron (10,000 tons) and complete the road to Catawissa. Second, by the issue 2,000 shares of common and 30,000 shares of preferred stock, leaving 8 per cent. interest.

The following is a summary of the proposed capital stock and mortgage debt of the company:—

28,000	shares old stock	$1,400,000
2,000	" "	100,000
30,000	" preferred stock	1,500,000
Bonds		1,000,000
		$4,000,000

The friends of the above project regard it as the trunk line of railroads from Philadelphia to Erie, and to western New York. Both Philadelphia and Baltimore are nearer than this city to Buffalo by any practicable route, and will, when connected with it by railroad, draw a large trade from that quarter. The construction of the Sunbury and Erie railroad, we regard as a certain event at no distant day. Philadelphia feels compelled to follow the example of New York, in having her own route to the Lakes, and will lend all her energies to the last named work as soon as the Pennsylvania railroad shall be completed.

This city has a direct interest in the opening of the Catawissa road, as it will bring us into more intimate connection with the coal fields, and with central Pensylvania. The New Jersey central road will soon be opened to Easton. Active measures are now in progress to construct a railroad from the last named place to the Beaver Meadow railroad. The completion of the above works would form a very direct line of railroad from New York to the Susquehanna River, and would enable us to share the benefits resulting from the opening of the Sunbury and Erie railroad.

From the Merchant's Magazine.

Internal Improvements in the State of New York.

A SKETCH OF THE RISE, PROGRESS, AND PRESENT CONDITION OF INTERNAL IMPROVEMENTS IN THE STATE OF NEW YORK.

RAILROADS, ETC.

Continued from Page 663.

The railroad line from the Hudson river, at Albany, to Buffalo, on Lake Erie, was constructed under seven distinct corporations. The portion from Albany to Schenectady, 16 miles, was completed in 1831; the road from Schenectady to Utica, 78 miles, was finished in 1836, and the conveyance by railroad was not carried beyond Utica, for three years; and in the meantime a railroad from Rochester to Batavia, 33 miles, was put in operation in 1837; and extended 12 miles to Attica in 1842. The road from Utica to Syracuse, 53 miles, was not put in operation until July, 1839. The road from Syracuse to Auburn, 25 7-10 miles was not in full operation until 1839, although 22 miles were operated with horse power from January, 1838, the cars running upon wooden ribbons laid on the wooden rails. The Auburn and Rochester

road, 78¼ miles, was completed in November, 1841. The Attica and Buffalo, 31 miles, was commenced September, 1841, and finished December, 1842.—The Troy and Schenectady road was also finished in 1842.* At the commencement of 1843, therefore a connected line of railroad was in operation from Albany and Troy, to Buffalo, at an aggregate expense at that time of about seven millions of dollars, a little more than the original cost of the Erie canal. The aggregate cost of these eight roads, as given in the annual reports of 1850, exceeds fifteen millions and a quarter of dollars.

	Cost.	Tolls.	Expenses.
Erie canal, original cost.....	$7,143,789	$2,926,316	$439,796
Erie canal enlargement....	15,990,443	....	....
Champlain canal.....	1,257,604	128,761	61,100
Oswego canal..	565,437	94,524	33,229
Cayuga and Seneca canal..	237,000	27,589	11,956
Chemung canal	648,600	16,276	30,782
Chenango canal	2,420,000	20,343	26,308
Black River canal..... .	2,057,388	1,115	10,014
Genesee Valley canal..... ..	4,477,969	28,821	10,737
Oneida Lake canal..... .	50,000	2,513	5,264
Oneida river improvement...	84,083	5,555	394
Seneca River towing path.	14,864	230	....
Cayuga Inlet...	11,279	205	....
Delaware and Hudson Canal.....	3,871,620	....	....
Total canals, 862 miles.	$38,986,857	$3,254,051	$637,580

Summary of the two Tables.

Total length of canal navigation within the limits of the State of New York..	862	
Total length of railroads within the limits of the State of N. York.....	1,657¼	2,519¼
Total cost of canals...	$38,986,857	
" railroads.	61,039,524	$100,026,381
Gross annual revenue from canal tolls.....	$3,254,051	
Gross annual earnings of railroads.....	5,941,435	9,195,486
Expenses for maintenance of canals.....	$637,580	
Expenses for maintenance of railroads...	2,645,186	3,282,766

In order to make a just comparison between the annual receipts of the railroads, and those of the canals, it is necessary to add to the tolls, the sums paid to those engaged in the transportation of products on the canals; the tolls being merely an equivalent for the use of the canal or way, constructed by the State; whereas the railroad companies furnish not only the road way, but the vehicles in which the commodities are laden, and the motive power. Those engaged in the transportation business on the canals, have 4 or 5 millions invested in boats, horses, &c., and the annual expenses for persons employed in managing the boats and horses, and the maintenance of the force necessary to attend to the transportation business, is very great. The sums paid for transportation on all the canals in 1849, separate from the State tolls, was equal to $2,459,963; add to this the tolls of the same year, $3,268,226, and the total is $5,764,189. In 1847 the total sum paid on account of tolls and freight on the canals, was equal to $8,453,533. This large sum was paid in 214 days of 1847, merely for moving the property which passed on the New York canals. Assuming that the transportation on the canals for 1850, was the same as in 1849, it makes with the tolls of 1850, a total of $5,750,014.* This is the sum paid in the year 1850, for the mere transportation of persons and property, on the canals and railroads within the limits of New York, and not including the Delaware and Hudson canal, or the transportation on the Hudson river.

In comparing the relative cost of canals and railroads, as given in the preceding tables, it is to be understood that many items enter into the "construction account" of railroads, which are excluded from the cost of canals. Some of the railroads pay interest on stock before the road earns anything, and this is added to the cost; in borrowing money they receive 85 or 95 cents from the lender, and issue bonds for 100; this difference, with interest on the bonds issued, is added to the cost of the road. In some cases the old superstructure is removed and a new and more expensive one is substituted, and the entire cost of the new one is added to "construction account," and no deduction made for depreciation on account of the old one.†

On the State canals, the law prescribes a rule which excludes all repairs from the original cost of construction; when the acting commissioner has completed a new canal, or a section of it, he reports the fact to the Canal Board, and that board appoints a superintendent, with whom an account is opened and all expenditures are thereafter charged to the account of "*repairs.*" If money has been borrowed for the work, the interest does not come in to swell the "construction account," the latter account being charged simply with the sums advanced to the acting commissioner, and by him paid to the contractor who constructs the canal, and the superintending engineer for his salary.—And thus, at the close of 1838, when thirty-one millions had been expended on the Erie and Champlain canals, including more than nine millions for interest and repairs, the "construction account," of those canals stood at $8,401,394 12, this account not having been increased from 1826, when these works were completed. The wooden structures on the canals are replaced once in about eight years, and new locks, aqueducts, &c., are constructed and charged to the account of repairs. Although the cost of the State canals, in the preceding table, is given at $35,155,237, the whole expenditure by the State on account of all the State canals, from 1817 to 1850, exceeds *ninety-three millions of dollars.*

THE NEW YORK AND HARLEM RAILROAD was chartered in 1831. In 1834, only four miles were in operation, to Yorkville. The capital was originally $350,000; increased to $750,000 previous to 1839. In the latter year the company had finished seven and a half miles, at a cost of $1,035,000, and were authorised to increase the capital to $1,950,000. In 1840, power was given to extend the road through the county of Westchester, to connect with the Albany railroad, and the sum of $1,000,000 was added to the capital of the company. In 1845, an act was passed, authorizing this company to extend their road from White Plains to Albany. The road was completed to Dover, in Duchess county, 80 miles from the city of New York, in 1848-9. It is now under contract from Dover to Chatham, about 50 miles, where it will connect with the road from Boston to Albany. From this point the Harlem road will, in a short time, be connected with an extensive chain of roads extending through Vermont, and will afford to a portion of the inhabitants of that State, and of Massachusetts, a more direct route to the city of New York than they have heretofore had.

THE NEW YORK AND ERIE RAILROAD was opened to Dunkirk on the 15th of June, 1851. It was finished within the time specified in the law of 1845, to entitle the company to a release from the State lien of $3,000,000, and the claim has been cancelled. This is a relief to the company of $6,256,261 55, being the amount of principal and interest on the stock loaned to the company from 1842 to the time of payment. In revising the line of the road, it became necessary to pass for a short distance within the jurisdiction of Pennsylvania. In granting the request of the company, the Legislature of the State affixed a condition that, after the road is completed to Lake Erie, the company shall annually thereafter pay $10,000 into the Treasury of Pennsylvania. This is an illiberal provision unless the money is received as an equivalent for taxes and other exemptions.*

Previous to 1845, as stated by the president of this company, about five millions of dollars had been expended, at which time the company had in operation 46 miles of road, the condition of which was such as hardly to permit a train of cars to pass over it with safety; and two millions, which had been expended west of Binghampton, was of little value, owing to the decay of materials by the use of piles, nnd a change of the line to improve the grade.

The subscribers to the stock of three millions of dollars in 1845, were assured by the directors, that interest at the rate of 6 per cent per annum should be paid to them semi-annually, "from the date of the respective payments, until a single track of the road shall be completed and put in use from the Hudson to Lake Erie, and also a branch to Newburg." This promise has been faithfully kept, and the last instalment of interest has been paid since the road was opened to Lake Erie. Hereafter the stockholders will be dependent for dividends on the net earnings of the road. The amount of capital stock paid in is $5,801,285 29.

Heavy expenses have been incurred in altering the line, reducing the grade, and erecting permanent and durable structures. To produce a comparatively even surface, for a distance of 445 miles, over the mountains and across the rivers and ravines which interpose between Piermont, on the Hudson river, and Dunkirk, on Lake Erie, so as to permit the passage of trains of cars at the rate of twenty-five miles an hour, is a work of no ordinary character.

Three miles west of Port Jervis, the Delaware

* The railroad from Albany to Boston, was opened in December, 1841. This being done, the enterprising spirit of Boston furnished the necessary means to complete and put in operation the Attica and Buffalo road, which had been chartered in 1836, and extended in 1838.

* The total will then be as follows, for the year ending 30th September, 1850:—

Received for tolls and transportation on the state canals.....	$5,750,014
Received on the railroads within the state.....	5,721,572
Total.....	$11,471,586

† The engines, cars, and all expenses for the equipment of the roads are also embraced in the preceding table of cost. On the canals, the boats, horses, &c., are the property of individuals.

* When Massachusetts desired to extend a railroad from Boston to the Hudson river, passing nearly forty miles through the territory of New York, a law was passed by the latter State to appoint commissioners to facilitate the measure, and an appropriation was made to defray the expenses of a survey of the road to the State line; and the law also contains the following provision:—"If the State of Massachusetts shall construct a railroad from Boston to the eastern boundary of this State, either directly, or through the medium of an incorporated company, the Legislature of this State will construct it from thence to the Hudson river, or grant to the State of Massachusetts, or some authorized company, the right of so doing, and taking toll thereon under proper restrictions as to jurisdiction." Although the obvious tendency of the Massachusetts road was to divert a portion of the trade of the Erie canal from the city of New York, yet the Legislature was willing to make a free grant to those interested in the road of the same privileges as if they were citizens of New York. And in the management of the public works of N. York, the State has uniformly resisted all attempts to establish any discrimination, either in the rates of toll or otherwise, between our own citizens and those of other States and Canada in the use of the canals. If these works had been constructed by the general government, as was contemplated at one time, the privilege of using them by citizens of all other States could not have been more impartially dispensed by the national government than it has been by the government of New York. Instead of losing by this liberal policy the interests of this State have obviously been promoted by it.

river is crossed on a bridge 800 feet in length, sustained on piers of masonry and arches of 150 feet span, the grade of the road being 40 feet above the water in the river. The Lackawaxen river is crossed by a bridge 450 long, and above this point the road recrosses the Delaware, from Pennsylvania to New York, on a bridge 580 feet in length.—There is a third bridge across the Delaware at Deposit. Between the first bridge and the Lackawaxen river, the track is laid on a shelf 100 feet above the river, having on one side a sustaining wall of 16,000 cubic yards of stone work, and on the other a precipice. Three miles of the road, on this line, cost $300,000.

In passing west over the high lands between the Delaware and Susquehanna rivers, there is an ascending grade of 57 feet per mile, for seven and a half miles, and from the gulf summit a descending grade of 60 feet for eight miles to Lanesboro'; this is the maximum grade of the whole line. The construction of a section of one mile, at the gulf summit, cost $200,000. The "Cascade bridge" is constructed over a chasm 180 feet in depth, with one span 275 feet in length; within a short distance of this place the road is carried over a creek and ravine on a massive stone structure, called the "Starucca Viaduct," at an elevation of 100 feet, requiring eighteen stone piers and arches, containing 22,000 cubic yards of masonry, at a cost of $320,000. There is a bridge across the Susquehannah 800 feet long.

In referring to the improvements in the line of the road since 1845, Mr. Loder states that "the line, as now constructed, will have between Dunkirk and the Hudson river, about 300 miles of level or slightly ascending grade, of not exceeding five feet to the mile."

The Hudson River Railroad was chartered in 1846, but the subscription not being filled, the charter was amended in 1847, allowing the payment of interest on subscriptions. The commissioners, to get subscriptions, and directors, in 1847, were John B. Jervis, Saul Alley, Stephen Allen, James Hooker, James Boorman, James N. Wells, Robert Kelly, William Chamberlain, Gardner G. Howland, Fortune C. White, Gouverneur Kemble, Aaron Ward, and Thomas Suffren. These persons made large subscriptions themselves, and by their great personal efforts obtained the required capital of three millions of dollars. It was a condition of the subscription that interest, at the rate of 7 per cent, should be paid from the date of the first instalment until the road was finished to Albany.

This road was completed from New York to Poughkeepsie, seventy-five miles, at the close of 1849. In this distance there is 3.376 feet in length of tunnelling, including the brick arch of 600 feet for passing under the Sing Sing prison yard. The principal tunnels are one at New Hamburgh, through compact lime stone, 800 feet long; one through Breakneck Hill, 500 feet, and one through Anthony's Nose, 350 feet; the two latter in the granite of the Highlands. The width of the tunnels is twenty-four feet, and the height eighteen.—In the line from New York to Poughkeepsie, forty-four miles are exposed to the river, and there is thirty-seven miles of protection wall on the river side.

The highest grade, on this road, is fifteen feet to the mile, at Poughkeepsie—there is another of thirteen feet, and others of ten—but these are only for short distances, and generally at stopping places, where the rise is of no practical importance. For nearly the whole distance from New York to Albany, the grade corresponds with the tide level.

In addition to the cash capital of three millions of dollars, the company was authorized to issue one million of stock to pay interest on the subscription. The interest was paid in cash until 1849, since which time it has been paid in stock, at par. When the road is finished to Albany, the interest is to cease, and the stockholders will depend for dividends on the net earnings of the road. Four millions of dollars have been borowed on a first mortgage of the road, and loans have been negotiated for two millions on a second mortgage.—This makes a total of four millions of stock and six millions of debt.

The Delaware and Hudson Canal, extending from a point on the Hudson river, ninety-four miles above the city of New York, to Honesdale, in Pennsylvania, 107 miles, with a railroad from the latter place to Carbondale, sixteen miles, is the work of a private company, operating under charters obtained from the States of New York and Pennsylvania. This work was completed in 1829, at a cost of $2,305,599 50. As originally constructed, the locks were seventy-six by nine feet, the water is thirty-six feet wide on the surface, and four feet deep. Between 1841 and 1844, such improvements were made in enlarging the canal and doubling the track of the railroad for ten miles, and otherwise improving the work, that in the latter year, 255,000 tons of coal were transported over the railroad, and boats were able to navigate the canal with cargoes of forty-five tons, being an increase of more than 50 per cent on the original canal cargo, and more than 100 per cent on the original capacity of the railroad. Subsequently the company added six inches more to the depth of water in the canal, so as to permit the passage of boats, in 1846, of fifty to fifty-five tons, the capacity of the canal being adequate to the transportation, annually, of 850,000 tons of coal.

The company is now engaged (1851) in again enlarging the canal, so as to give a depth of six feet, and a width at bottom of thirty-two feet of water, the surface width being generally forty-five feet, allowing the use of boats with a cargo of 130 tons. The new locks are 100 feet long and 15 wide. It is estimated that this improvement will more than double the capacity of the canal; and it has been made to allow the transit of an increased quantity of coal brought to the canal by the Pennsylvania Coal Company, which has constructed a double track railroad from the canal, at Hawley, a distance of forty-five miles, to another section of the northern coal field. The extent of the canal within the limits of New York, is eighty-four miles, and the expenditure, within the State, to August, 1851, is $3,871,620.

This company, after its charter was obtained, in 1823, sent an engineer to England to obtain information in regard to the construction of railroads. And Horatio Allen, Esq., chief engineer of the Erie railroad, stated in a speech at the opening of that road, that the first trial of a locomotive engine on the Western Hemisphere, was made by himself on the Carbondale railroad, in the year 1828.

This company has constructed four "*wire suspension aqueducts*" for carrying the canal across the Delaware and other rivers. These structures are of a novel and interesting character, and are in the highest degree creditable to the skill of the engineer, who constructed them, and the enterprise of the company. The following description of these aqueducts has been obtained from R. T. Lord, Esq., chief engineer of the Delaware and Hudson Canal.

The aqueduct over the Delaware river, connecting Pike county, in Pennsylvania, with Sullivan county, in New York, was constructed in the years 1847 and 1848. Another over the Lackawaxen, in 1849, and one over the Neversink, and another over the Rondout, in New York, in 1850. These aqueducts are constructed on the plan of the Pittsburg Suspension Aqueduct, a structure which has proved eminently successful, and was the first of its kind in the world, designed and executed by John A. Roebling, Esq., civil engineer, of the city of Pittsburg. After an examination of this work, by Mr. Lord, a contract was entered into for the erection of the superstructure of those on the Delaware and Hudson canal.

"The trunks are composed of timber and plank, well joined and caulked, and suspended to two wire cables, one on each side. The cables rest in heavy cast iron saddles, which are placed on top of small stone towers of about four by six feet base, rising four or five feet above the tow path. The towers are each composed of three blocks of white quartz pudding stone. There is a tow path on each side of the trunk. The cables are made in one length across the rivers, from abutment to abutment, and connected at their ends with anchor chains, manufactured of solid wrought iron, in bars of from five feet to ten feet long, and five to six inches wide, by one and a half inches thick. The lower end of each chain is secured to a heavy cast iron anchor plate of six feet square, which supports the foundation of a large body of masonry, the weight of which resists the strain of the chain and cable. As the cables are protected against oxydation by a copious varnish and paint, and closely encased by a tight wire wrapping, which gives them the appearance of solid cylinders, they may be considered as indestructible."

The following table exhibits the principal dimensions and quantities of the Delaware aqueduct:—

Hydraulic cement masonry, in abutments, piers, and anchorage, cubic yards	7,688
Length of aqueduct, with extensions, feet.	600
Number of spans, (varying from 131 to 142 feet)	4
Width of trunk at water-line, feet	19
Depth of water in aqueduct, feet	6½
Weight of water between abutments, tons.	1,950
Weight of water in one span, tons	487½
Diameter of wire cables, inches	8½
Length of wire weighing one lb, feet	17½
Number of wires in each cable	2,150
Total weight of cables and anchor chains. lbs	190 000
Ultimate strength of each cable, tons	1,900

The bottom of the aqueduct is elevated twenty-eight feet above the waters of the river.

The Neversink aqueduct has one span of 170 feet, the wires in each cable are 2,880, the cables nine and a half inches in diameter, and the ultimate strength of the cables 5,200 tons; tension of cables 998 tons.

The aqueduct at the Highfalls has 1 span of 145 feet—weight of water 538 tons—tension of cables resulting 790 tons—number of wires in each cable 2,300—ultimate strength of cables 4,100 tons.

Mr. Lord states that from the most careful attention and inspection of these aqueducts, in this State and in Pennsylvania, he is "decidedly of the opinion that the plan, as designed and excuted by John A. Roebling, Esq., secures the best combination of wood and iron that has ever been effected for works of the kind, both in regard to economy and durability. With the exeption of a wooden trunk, (which may be economically made of plate iron,) all the important portion of the work will last, it may be said, an indefinite period."

Structures on the State Canals.—There are many structures on the public works of the State of great solidity and beauty. Between Albany and the lower aqueduct, across the Mohawk, there are thirty-seven locks, which cost, on the average, $85,689 10 a pair, or, $42,844 55 for each lock.—The old locks cost $10,000 each. The aqueduct across the Mohawk, about 1,100 feet long, and constructed entirely of stone, cost $346,856; the upper aqueduct originally cost $87,127 61. It was 802 feet long, and sustained by ten arches of fifty feet span. There are five pairs of combined locks, at Lockport, which cost over half a million of dollars. The old double locks cost $123,309, exclusive of excavation.

On the Chenango Canal, six reservoirs were constructed, to supply the summit level with water. The whole covered an area of a thousand acres.—These reservoirs, besides aiding the Chenango Canal, have been useful in furnishing water for the eastern end of the long level of the Erie canal.

Illnois.

Burlington and Peoria Railroad.—We learn by the Knoxville Journal and Burlington, (Iowa) papers that the projected railroad from Burlington to Peoria has all been put under contract. Arrangements have been made whereby the means for constructing the road may be readily obtained, and the whole is to be finished in two years. Such are the statements in the papers referred to, and we trust their participations may be realized. There can be no doubt that the road, connecting as it will with all railroads of the west will pay a very handsome profit to the stockholders. A large proportion of the capital has been subscribed at Burlington and along the line of the road, showing a sagacity and liberality among the people interested rarely to be met with. This enterprise has been taken hold of with such determination and vigor as to forbid every prediction of failure. We say to those engaged in it "go ahead" in spite of all obstacles, and in triumphing you will reap a reward which will compensate you a hundred fold.

Tennessee.

The following are the recommendations of Gov. Trousdale, of Tennessee, in his valedictory message, in reference to aiding the railroad projects in that State. After mentioning the several roads now in progress he says:—

We are all satisfied of the benefits which would result to the state from a well organized system of railroad communication. But the great question is, Can the state safely extend such aid to individual enterprise, as will accomplish this desirable object? This is a question alone for the determination of your honorable body. Experience has shown that partnerships between the state and individuals, in works of internal improvements, result badly. Perhaps the better plan would be, to grant liberal charters to companies composed of individuals, for the construction of railroads. Let them by their money and labor prepare the road for the rails and fixtures, and then call upon the state for aid. Should it appear from investigation that the improvements thus made, when finished, would be profitable, let a lien be taken by the state upon the whole stock of the company in the road as completed, and upon the rails and fixtures, to save the state from loss; then let the state loan her credit in state bonds, payable at a distant day, say fifty years or less, bearing an interest of 6 per cent payable semi-annually, at some commercial point in the United States. Should the credit of the state not be impaired by the issue of bonds to an amount beyond which it can safely go, the bonds will sell in market for a premium, which might be applied in the payment of interest. In this way, works of internal improvement may be constructed and put in operation, which would defray the expense of building, and enrich the individual stock-holders, and the state be subjected to no cost and bnt little risk in the aid she affords in the construction.

Toronto and Lake Huron Railroad.

We have already given an account of the opening ceremonies of this road. In speaking of its connections, and its probable influence upon the course of travel, the Lake Superior Journal says:—

Saut Ste. Marie is at present the natural western terminus of this northern route; if a ship canal should ever be built across this short portage, connecting Lake Huron with Lake Superior, this terminus would be removed five hundred miles westward to Fond du Lac at the head of Lake Superior, in Minnesota territory. A railroad, thence to the Upper Mississippi, a work that is likely to be soon undertaken would remove this terminus still further to the great west. This northern railroad commences at Toronto a fine city and easily accessible to the whole east, and runs in a northwesterly direction to Lake Huron or the eastern extremity of the Georgian Bay, a distance of about 80 miles, from which point there is a beautiful, river-like navigation to this place, a distance of 250 miles, making a very direct line from Toronto to the foot of Lake Superior, in distance not over 330 miles, or some 400 miles less than by the other route via Detroit and Buffalo.

For a few years to come, till the Saut Ship canal is constructed and also the communication from Fond du Lac with the Mississippi, the travel and business will be turned off, in a measure, at this point from this direct route to that via Mackinac and Lake Michigan. And soon as this Toronto road is completed, we expect to see a daily line of steamers plying between its western terminus to this place and Mackinac, for besides saving the 400 miles, the traveling community will find it a delightful route and will save the crossing of Lake Huron, except that portion of it included in the Georgian Bay, which can be navigated by steamers in all kinds of weather.

But eventually this will be but a part of the great thoroughfare from the east to Lake Superior, Minnesota and the *States west.* Sooner or later Lakes Huron and Superior will be connected by a ship canal, on one side or the other, and steamers will run directly from Detroit and Penetanguishene to Fond du Lac; the shores of Lake Superior will be crowded with towns and cities; from the south and the east the tide of population will set into Minnesota and the region west, and people will wonder that canals and railroads were not sooner built, and that so valuable, healthy and pleasant a country was not sooner settled.

Capital Trial for Obstructing a Railroad Train.

A trial of much interest recently took place in the Court of Common Pleas, Cuyahoga county, Ohio, which resulted in the conviction of Horace L. Brooks, of murder in the second degree, for placing an obstruction upon the Cleveland and Pittsburg railroad track, by which an accident to the train was caused, resulting in loss of life. The testimony in the case was circumstantial, but seemed clearly to fix the guilt upon the prisoner. The indictment was under the following statute of the State:

Be it enacted, etc., That every person who shall wilfully and maliciously remove, break, displace, throw down, destroy, or in any manner injure, any iron, wooden or other rail, etc., * * * or who shall wilfully and maliciously place any obstruction or obstructions upon the rails or tracks of any such railroad, shall, on conviction thereof, be punished by imprisonment in the penitentiary not exceeding three years nor less than one year; provided, however, that if any person shall by the commission of either of the aforesaid offences, occasion the death of any person or persons, the person so offending shall be deemed guilty of murder in the first or second degree, or manslaughter, according to the nature of the offence; and on conviction thereof shall be punished as in other cases.

It did not appear that the prisoner had any intention to injure any individual in the train, but was actuated solely by ill will towards the company. By the statute the party is made responsible for the consequences of his act, although there may have been no design to injure any individual.

The Great Railroad Pier; Made Land.

This immense enterprise is rapidly going forward. More than three hundred feet of the pier have been already completed. Few have any conception of the magnitude and expense of the undertaking of which this pier is a part. The pier alone will be 1200 feet long by 200 feet wide, and built in the most substantial manner. The Pittsburg track crosses the pier by a pile road near Bath street, 40 feet farther out in the lake. The proposed pier of the Lake Shore road will meet the Columbus railroad pier. At the junction, a passenger depot 300 feet long and 100 wide, will be built upon the former pier, and a passenger depot 400 feet long and 200 wide, upon the latter pier.

Two rows of piers, filled between with stones, will be driven from a point 650 feet from the shore upon Stockley's pier, to a point at the same distance from the shore upon the government pier—thus entirely fencing out the lake. The still water will then be filled up, and that unprofitable part of the lake become made land.

It is said that a year and a half will be needed to complete the work. It will cost not less than $200,000, probably more. Twenty-five hands are now engaged in building the pier—they make good progress. The work is managed by George Smith, Esq., contractor. He is a thoroughly efficient gentleman, and will keep things moving.—*Plaindealer.*

Ohio.

Pittsburg and Cincinnati Railroad.—Gen. C. Anthony, President of the road, has given notice, that proposals will be received from the 1st to the 10th of November, at the office of the company in Springfield, for clearing, grubbing, ballasting, masonry, bridging, ties and tracklaying, of that portion of the line lying between Marysville and Delaware. The portion between Springfield and Marysville was put under contract sometime since. About one-half the line will be under contract after the 15th of November, when the accepted propositions will be announced. At Delaware the line connects with the Cleveland and Columbus railroad, thus giving that line the advantage of two distinct routes from that point to Cincinnati, one by Columbus, the other by Springfield. We presume the remainder of the line, between Marysville and Loudonville, passing through Mt. Vernon, will be put under contract at an early day. It is very important to Pittsburg that it should be finished to Loudonville as soon as possible, as it will give us a most capital through line to Cincinnati. Our road will be finished to Loudonville next summer, and we trust the Pittsburg and Cincinnati road will be completed by the spring following.

Nashville and Mississippi Railroad.

We learn (says the Nashville True Whig,) that Messrs. Hazelhurst and Green, two able and energetic Engineers, accompanied by an efficient corps of assistants, set out yesterday for the purpose of making an instrumental survey of the contemplated railroad to connect Nashville with the Mississippi river at, or not far distant from Madrid Bend—at least we understand the *base line first to be surveyed* will tend to that point on the Mississippi.

This line of road is intended as a continuation of the East Tennessee and Virginia road through the East Tennessee and Georgia railroad from Knoxville to Cleveland, or some other point, whence a short line of road, (also in contemplation,) will connect it with the Nashville and Chattanooga—thus forming a continuous and *direct* line through the valley of Virginia, east, middle and western Tennessee, to the great Missisippi, at the same time giving us access to the southern portion of Kentucky—and if we cast our eyes westward still further, we find it but a step as it were to unite us with the great Pacific railroad now in course of construction from St. Louis to the western limits of the State of Missouri.

Railroad Convention in Iowa.

A State railroad Convention was held in Iowa city on the 15th inst. of which Ex-Governor Lucas was President. Fifteen counties were represented, and the deliberations of the convention appear to have been marked with entire harmony and good feeling. A memorial to Congress was adopted, asking for a grant of lands, on the same terms precisely as that made to the State of Illinois at the last session, to aid in the construction of a railroad from Dubuque to Keokuk, and another from Davenport, opposite Rock Island city, to Council Bluffs on the Missouri river. Hon. James Grant, Gen. V. P. Van Antwerp, Hannibal Emerson, Esq., George S. Hampton, Esq. and Barlow Granger, Esq., were appointed delegates to Washington to urge upon Congress by every honorable means, compliance with the expressed wishes of the convention.

Massachusetts.

Saugus Branch Railroad.—A satisfactory arrangement has been made with this company, says the Salem Gazette, by means of which it is expected that the Eastern railroad companies will be enabled to enter into the heart of the city of Boston, before the expiration of many months, and entirely to discontinue the ferry at East Boston. The following officers were elected, at the adjourned meeting of the Saugus branch railroad company:—Directors—Isaiah Breed, Samuel Hooper, Albert Thorndike, Gardiner G. Hubbard, George Hood, George W. Raddin, Joshua Webster. At a subsequent meeting of the Directors, G. G. Hubbard was elected President, and George Hood, Treasurer.

From Cincinnati to Pittsburg in a day.

By the 15th day of December next, it is expected we shall have continuous railroad connections with Cincinnati, by way of Cleveland, and it is expected that passengers who leave Cincinnati in the morning will arrive in Pittsburg the same evening. It is proposed that passengers leave Cincinnati, as at present, at 5 o'clock a.m., and arrive at Cleveland, as at present, at 5 p.m., and leave Cleveland, as they do at present, at 5½ p.m., and arrive at Alliance at 8, and leave Alliance immediately, and arrive at Pittsburg at 11, of the same day on which they left Cincinnati.

By that time there will be a continuous railroad between Pittsburg and Philadelphia, with the exception of about 25 miles of staging. There will also be the route by West Newton to Cumberland

and the Baltimore road to Baltimore and Washington.

Virginia.

The Orange and Alexandria road, it is expected, will certainly be completed to the junction with the Mannassas Gap road, by the 23rd inst. The laying of the rails on the Mannassas Gap road will then commence, and be prosecuted with rapidity.

The Blue Ridge Tunnel.—This work, which has now been in progress for nearly two years, will, we understand, in all probability, have to be abandoned, in consequence of the hardness of the rock, which has been found to exist to such an extent as to render it a matter of much doubt whether or not the work can be prosecuted much farther without a very great additional expense; several propositions will go before the next Legislature to have the work discontinued.—*Scottsville Register.*

The Hoosick Tunnel.—We understand from a reliable source that active operations for tunneling the Hoosick Mountain, on the line of the Troy and Boston railroad, have commenced. Fifty workmen have for several days been engaged in removing the earth preparatory to setting up a steam machine that is to do the boring. The cost of the machine, or drill, is $15,000, and its capabilities are not doubted by those who understand it. It will be in operation in about six weeks.—*Troy Whig.*

Papers read before the British Association for the advancement of Science.

"On the effect of the Telescopic Funnels of steam ships on their compasses," by Captain Johnson, R. N.—This communication was made in a letter to Col. Sabine, of which the following extract gives the substance:—"You will perceive by the deviation tables of H. M. SS. *Ajax* and *Blenheim*, that if no heed were taken of the deviation when regulating the ship's course, the most serious consequences might be apprehended. Taking as an example the case of the *Ajax*, with the funnel *up*, running upon an easterly course at the rate of 9 knots per hour, it will be seen that in 24 hours only, if no allowance were made for deviation, the ship would be 50 miles out of the reckoning, and with the funnel *down* the error would be increased to 72 miles in the same space of time, while the case of the *Blenheim* would not be very different. In the humid and misty atmosphere, which so often prevails on the coasts of the British Isles, the fact that a ship such as the *Ajax*, if steered a compass course, but without allowing for deviation, for mid-channel between Ushant and the Lizard, would, instead thereof, be running for the dangers about Ushant with the funnel *up*, and with it *down* be so far out of the proper course as to be advancing towards the rocks south of Douarnenez Bay, is, I conceive a proper example to show the importance of attending to the effects produced on the compass, and the two conditions of the funnels of steamships. But besides the practical question, I wish you to bring under notice the following results which I obtained with reference to the effect of hollow iron cylinders upon the compass, when placed inside each other, the object being to ascertain whether the whole difference of deviation under the two conditions of these telescopic funnels was due to the difference of their elevation and depression only, or whether a portion of the said differences was attributable to the induced magnetism of the separate parts of the funnel, when lowered, acting upon each other. As it would have required more time than could be afforded to hoist the parts of those huge funnels in and out of the ship while the requisite succession of observations were made, I procured three hollow iron cylinders of smaller dimensions, their several diameters being such as to admit of one cylinder being placed inside of another, and leaving a space of about one-eighth of an inch between their surfaces. Having placed a standard compass on one of the pedestals in the observatory, and ascertained the magnetic meridian for the moment by the collimator, the largest or external iron cylinder (No. 1) was brought in, and placed to the eastward of the compass, the principal mass of the cylinder being below the level of the needle and card, and its upper end being 2½ inches above that level. By this means a deflexion or deviation of 10° 10′ was produced, the north end of the needle being drawn that amount to the eastward of the correct magnetic north. Cylinder No. 2 was next placed inside of No. 1, when the deviation was increased to 12° 15′. Cylinder No. 3 was then placed inside of No. 2, and the deviation was again increased to 14° 15′, the north end of the needle being drawn to the eastward in each case. Hansteen's Magnetic Intensity instrument was then placed with the centre of its needle (as nearly as I could adjust it) in a similar position to that which the course of the compass had occupied, and the following results were obtained:

	Time of 100 vibrations starting from an arc of 18°.
Previous to the cylinders being brought into the observatory	6′ 57″
No. 1. cylinder in place	6′ 51″
No 2 cylinder in place inside of No. 1	6′ 47″
No. 3 cylinder in place inside of No. 2	6′ 45″

The intensity instrument being removed, a dipping needle was then employed, and the following are the results of the observations:

	Mean of Readings. Dip.
Previous to the cylinders being brought into the observatory	68° 37′
No. 1 cylinder placed to the south of the instrument	70° 10′
No. 2 cylinder in place inside of No. 1	70° 27′
No. 3 cylinder in place inside of No. 2	70° 37′

The conclusion to be deduced from all these observations appears to be, that to the deduced magnetism of the surfaces of each cylinder acting upon each other is due a portion of the deviation: and reasoning by analogy, a similar deduction is applicable to the telescopic funnels of steam-ships. —*London Artizan.*

IRON BRIDGE ACROSS THE APPOMATTOX.

On Monday the iron bridge on the Danville railroad across the Appomattox river was fully tested. The President, and Messrs. Gifford and Harvie, directors, and a large number of gentlemen were present. A weight of more than a ton to the foot, was put upon the bridge, and the engine crossed at the rate of 25 miles an hour without making a pressure of more than one-quarter of an inch. The Chief Engineer declared that it could sustain a pressure of 600 tons, three times heavier than the test applied. The result of the trial gave entire satisfaction. The work is done faithfully and the structure is not only entirely sufficient as to strength, but promises to endure the effects of use and time uncommonly well.—*Richmond Dispatch of the 15th ult.*

The above bridge was built by the New York Iron Bridge Company, under the direction of Mr. M. M. White, whose office is at 39 Wall Street. We learn that a premium was awarded to this bridge at the World's Fair at London.

Illinois.

Chicago and Galena Railroad.—This road is now opened to Marengo, 64 miles from Chicago. It is the intention of the company to push on to Bellvidere, in the course of two weeks from this time, and by the first of January to complete it to Cherry Valley, six miles east of the town of Rockford. From Cherry Valley to Rockford, they will encounter some hoavy grading, which will delay the onward progress for several months.

Pittsburg and Steubenville Railroad.

We learn from the Pittsburg Journal, that the examination of the engineers on the line of the Pittsburg and Steubenville railroad, has proved the easy practicability of the road by three different routes, and that it only remains to decide by comparison upon their respective merits. In a month's time the engineers will be ready to report, and it is intended to prosecute some of the work this winter, and to put the whole line under contract, in March.

Great Western Railroad of Canada.

We are able to state, (says the Quebec Gazette) from undoubted authority that Mr. Atcheson, the agent of the Great Western line of railway, has succeeded in raising in the English market all the money required to complete the road, and that more might have been had, if it had been necessary. It is understood that the very strong support given to the scheme in Manchester had the effect of bringing it in favor in the London market.

Illinois.

Rock Island and Chicago Railroad.—We learn from the Joliet Signal that the work on that section of the Rock Island and Chicago railroad, taken by Hon. J. A. Matteson, is progressing rapidly. Mr. M. has two hundred men and sixty teams now employed, and expects to increase the number of laborers to one thousand by the middle of November.

Michigan.

Central Railroad.—This company have just received at Michigan city six large "Eagle Locomotives, from the factory at Manchester, N. H. They have driving wheels over six feet in diameter, and are intended for running between Chicago and Detroit, which, it is intended, shall be done in nine hours. The distance is over 280 miles.

Cleveland and Pittsburg Railroad.

We learn from the Cleveland Herald, that this road is rapidly approaching completion. On and after Monday next, the regular trains will run from Cleveland to Hanover, a distance of 75 miles. The road will be completed to Wellsville by the first of January next, and a new steamboat will be finished to run from that point to Pittsburg, in connection with the express trains.

Cincinnati, Hamilton and Dayton Railroad.

The extensive depot of the Cincinnati, Hamilton and Dayton railway, extending from Sixth to Fifth street, is fast approaching completion. A friend of ours, who has recently traveled through Europe and Great Britain, speaking of this building remarked that it was the largest and most perfectly planned depot he had ever seen, and he believed larger than any other in the world.

South Carolina.

Spartanburg and Union Railroad.—The above company have surveyed a route for their road, commencing on the east bank of Broad river, at the Alston station, 19¼ miles from Columbia, crossing the river Alston at Henderson Island, and then pursuing the general direction towards Spartanburg, via Union. A portion of three distinct routes was surveyed; the first is 67½ miles long, and is estimated to cost $669,105. The second 67 miles long, cost $685,268. The third is 68 1-5 miles long, and will cost $639,340. The routes are favorable as far as grades and curves are concerned, and of very easy construction.

The meeting of the directors of the road took place at Glen's Springs, on the 25th ult. The President of the company was instructed to communicate with the Columbia and Greenville railroad, for the purpose of ascertaining upon what terms the said Spartanburg and Union railroad could connect with said Columbia and Greenville railroad at Alston depot. And also with the President of the Charlotte and Columbia railroad, to ascertain upon what terms the Spartanburg and Union railroad could connect with said road, together with what facilities would be granted by each of said companies to the Spartanburg and Union railroad in the transportation of railroad

iron, cars, etc. The directors voted to have a general meeting of the stockholders, at Union Court House for the purpose of locating the road. The following are the officers of the company :—

Hon. Gabriel Cannon, President; J. H. Dogan, J. S. Sims, J. T. Kirby, T. B. Jeter, Jas. M. Gadberry, S. N. Evans, J. Winsmith and Thomas M. Lyles, Jr., Directors.

American Railroad Journal.

Saturday, November 8, 1851.

Trautwine, on Excavations and Embankments.

By John C. Trautwine, C. E., Philadelphia.

We had supposed that the modes in common use for calculating cubic contents on public works, admitted of no further simplification. They are long and tedious, owing to the great number of calculations that have to be made, and the necessity of repeating them in order to test their accuracy. Still we believe it has been generally conceded that the evil was a necessary one, and that (as in geometry) there was no royal road by which to arrive at the same conclusions. This supposition was strengthened by the fact that the subject has repeatedly engaged the attention of the most eminent professional men both at home and abroad. It appears to us however, on perusing Mr. Trautwine's work, that he has succeeded in the most satisfactory manner in devising a plan entirely new and original, of great simplicity, and admitting of a degree of rapidity altogether unapproachable by any other method; while, at the same time, it possesses all the accuracy that is attainable or desirable in practice.

All cases of inclined, or side-hill, cuttings or embankments in which the ground-slope is uniform, for the width occupied by the cut or fill, are solved by his method with almost the same rapidity as those on level ground, by means of the small engraved diagrams given in the book itself, aided by the accompanying tables of level cuttings.

Those of very irregular cross-section are deduced with but little more expenditure of time by the aid of "Trautwine's cross-section diagram," and a parallel ruler.

This diagram is a beautiful copper plate engraving, prepared and sold separately by Mr. Joseph Hufty, of Philadelphia. Its use will no doubt soon become as general among our engineers as that of the well known profile paper. Those who do not see fit to purchase the engraved diagram, can prepare it for themselves, according to the directions given in the book.

So far as we are enabled to judge from a rapid examination of Mr. Trautwine's book, it appears to us to possess more practical interest to the profession *generally* than any treatise on the subject that we have ever seen; indeed we feel almost inclined to add, than any professional work that has been presented to them for some time.

In trial lines particularly, where time is important, the rapidity of the method, and the fact that in the field it requires nothing more than to obtain the transverse ground slopes, will render it invaluable.

We may possibly overrate its merits, and therefore shall be pleased if some of our civil engineers will furnish us with their opinions respecting it, based upon its use in actual practice.

The book is for sale by Wm. Hamilton, Actuary of the Franklin Institute, Philadelphia. Price, $1.

The Compound Rail.

We learn that the Great Western railroad of Canada has determined to purchase Winslow's compound rail, and that an order has already gone to England for this purpose. One great object in the construction of the above road is to open a through route in connection with Central N. York and the Michigan Central roads, from Albany to Chicago. The length of the Great Western is 228 miles. The route is remarkably direct, and free from objectionable grades, and with the compound rail, it is believed that at least one-third quicker time will be made by the use of the above pattern over the common form, to say nothing of the greater safety in its use, and the vast saving in the road bed and machinery The Hudson River and the Utica and Schenectady roads, on the northern route, have already made a successful trial of this rail, and we confidently expect to see it laid down upon the whole route as fast as the old rail shall come up.

We believe that the compound rail would answer admirably upon the river bottoms of the west, that are liable to be overflowed. It would not only make an entirely safe superstructure, but would effectually confine the wooden superstructure in its place.

Iron Manufacture in Ohio.

The Ironton Register states that while in most parts of the country the iron interest has been exceedingly depressed for a number of years past, the furnaces and rolling mills in the vicinity of Ironton have been doing a profitable business, and are now paying their way, though not making much money, owing to over production. There are now in the iron region of Ohio and Kentucky, of which Ironton is the centre, 36 furnaces. A large number of the proprietors of these establishments recently held a consultation, and resolved to reduce the make of iron at their respective furnaces 40 per cent, the agreement not to go into effect till assented to by the proprietors of at least 30 furnaces.

The Register draws a flattering picture of the future prospects of Ironton. No part of the United States possesses greater facilities for the manufacture of iron than those portions of Ohio and Kentucky bordering the river. The supplies of ore, and mineral and charcoal are inexhaustible. The metal made commands from 3 to 5 dollars more than the Pennsylvania iron, and can be forwarded at much less cost to the markets down the river.

We are glad to find, amid the general distress, one bright spot. But success here is owing rather to the remarkable facilities for cheap manufacture, than the price obtained.

Steubenville and Indiana Railroad.

The whole line of this road from Steubenville to Newark, 116 miles, has been placed under contract, to be completed in two years from January next. The contracts are made with responsible parties, and embrace the construction and equipment of the whole line.

This road makes the *fifth* line of railroads now in progress running through the State from east to west, viz: the Lake Shore, Ohio and Pennsylvania, Steubenville and Indiana, Ohio Central, and Cincinnati and Marietta.

By the Steubenville route, the distance from Pittsburg to Columbus will be as follows:

Pittsburg to Steubenville	42 miles.
Steubenville to Newark	116 "
Newark to Columbus	33 "
	191 miles.

Indiana Northern Railroad.

We invite attention to the advertisement of this company in another column of the sale of their bonds for the completion of their road. The Northern Indiana, is the extension of the Michigan Southern railroad, from Toledo to Chicago; and, occupying the shortest line of any work either in operation or in progress, between the southern shores of Lakes Erie and Michigan, it must become one of our most important lines. The importance of its connections can hardly be exceeded, while the country traversed is one of the most fertile sections in the United States. It is capable of furnishing a very large business to a railroad. The road is under most efficient management, and is to be completed early next season.

Memphis and Charleston Railroad.

The agent of the Memphis and Charleston railroad, now in London, writes that he had purchased eight thousand five hundred tons of railroad iron for this road, best quality T rail, fifty-eight pounds to the yard—costing, delivered at New Orleans, $38 34 per ton. This will be sufficient to iron the road from Memphis to Lagrange, fifty miles, and from Tuscumbia to Decatur, forty-three miles.—The first shipment will be made by the middle of October, and will reach New Orleans probably early in December. The whole to be delivered in five equal monthly shipments, ending first April next.

Stock and Money Market.

The improvement which we noted in our last number continues. Money can now be had at a fair rate on well known securities. Stocks continue to improve. The Erie in particular has shown a most marked advance, selling for at least 17 per cent more than its lowest point a month or two since. The general belief is that money will be very easy again in a short time. The business season is drawing to a close, the receipts of gold continue to exceed expectation, and should the shipments be moderate, money must become abundant again.

Notwithstanding the comparative ease in the market, and the prevailing opinion favorable to its continuing so, there is but very little sale for railroad securities. Some time must elapse before they will sell readily. There is not much distrust of the securities of new works, but money has not yet become sufficiently abundant to create any demand for them. We would advise our friends to keep out of the market as long as possible; for the less offered, the sooner it will receive its tone.

The receipts of our roads show a most marked increase over last year. This is a very favorable circumstance, and tends to maintain confidence in railroad investments.

Erie Railroad.—The receipts of the Erie railroad for October, have exceeded even the large amount predicted, and must give the most unbounded satisfaction to those who have always retained their confidence in the profitableness of this great work. The figures are as annexed:

From passengers and mail	$178,292 82
From freight	178,260 39
Total	356,553 21
Same month 1850	160,579 91
Increase	$195,973 30

The equality of the passenger and freight earnings is truly remarkable—the difference being only $32.

The Evening Journal gives the annexed statement of the quantity of flour, wheat, corn and barley, left at tide water during the 4th week in October in the years 1850 and 1851, as follows:

	Flour. bbls.	Wheat. bush.	Corn. bush.	Barley. bush.
1850	227,455	383,150	70,705	179,989
1851	184,837	172,972	234,676	209,496
Dec	42,318	210,178	Inc. 163,971	de.29,507

The aggregate quantity of the same articles left at tide water from the commencement of navigation to the 31st Oct., inclusive, during the years 1850 and 1851, is as follows:

	Flour. bbls.	Wheat. bush.	Corn. bush.	Barley. bush.
1850	2,248,862	2,240,644	3,099,737	1,329,197
1851	2,731,124	2,427,278	7,089,439	1,033,090
Inc.	482,262	186,634	3,989,702	dec.296,107

The aggregate quantity of the same articles left at tide water from the commencement of navigation to the 31st Oct., inclusive, during the years 1849 and 1851, is as follows:

	Flour. bbls.	Wheat. bush.	Corn. bush.	Barley. bush.
1849	2,344,032	1,806,038	4,725,668	961,938
1851	2,731,124	2,427,278	7,089,439	1,033,090
Increase.	387,092	567,240	2,363,771	71,152

By reducing the wheat to flour, the quantity of the latter left at tide water this year, compared with the corresponding period of last year, shows an increase of 519,589 bbls. of flour.

United States Mint.—The following is a statement of the operations of the mint at Philadelphia for the month of October:—

GOLD.	Pieces	Amount.
Double Eagles	205,511	$4,110,220 00
Eagles	33,060	330,600 00
Half Eagles	44,096	220,480 00
Quarter Eagles	114,408	286,020 00
Gold Dollars	283,699	283,699 00
Total	680,774	$6,231,019 00
SILVER.	Pieces.	Amount.
Half Dollars	36,000	$18,000 00
Dimes	137,000	13,700 00
Half Dimes	40,000	2,000 00
Three Cent Pieces	500,200	15,006 00
Total	1,393,974	$5,279 725 00
COPPER	Pieces.	Amount.
Cents	665 000	$6,650 00
Total	2,058,974	$5,286,375 00

Gold bullion deposited for coinage from 1st to 31st October, 1851, inclusive:

From California	$4,670,000
Other sources	75,000
Total	$4,745,000

Silver bullion deposited in same time.... $21,500

Immigration.—The total arrivals of foreign immigrants at New York from the 1st of January, 1851, to the present date, have been as follows:—

January	14,709	June	34,402
February	8,179	July	27,613
March	16,055	August	50,251
April	27,779	September	33,586
Mayl	33,858	October	21,397

Philadelphia and Columbia Railroad.—The collections at the office of this company, in Philadelphia, for the month of October, and for the year, have been as follows:

Amount as per last report	$315,857 66
Ditto, month ending October 31, 1851.	42,285 47
Whole amount since Nov. 30, 1851...	358,243 13
Amount same time last year	317,894 61
Increase	$40,348 52

Reading Railroad.—The condition of the road is as follows:—

Net earnings to 1st October		$819,891 34
Estimate for October and November		200,000 00
		$1,019,891 34
Interrest on debt	$613,266 00	
Sinking fund	100,000 00	
		713,266 00
Dividend Fund		$306,625 34
Dividend on Preferred Stock	$112,050 00	
" on Common stock 4 per cent	166,393 28	
State tax on dividend	13,920 00	
		292,363 28
Surplus		$14,262 06

Ohio and Pennsylvania Railroad.—This road was opened on the 30th July last to New Brighton, 28 miles. The earnings of August, September, and October have been $19,127 40

Deduct expenses, 40 per cent 7,650 95

Net receipts for three months 11,476 44

Being at the rate of 8¼ per cent per annum on the cost of that part of the road in use. The number of passengers carried was 34,700. This road will be extended to Enon valley, 14 miles beyond Brighton, on the 17th inst.

Railway Share & Stock List;

CORRECTED WEEKLY FOR THE

AMERICAN RAILROAD JOURNAL.

NEW YORK NOVEMBER 8, 1851.

GOVERNMENT AND STATE SECURITIES.

U. S. 5's, 1853	101½
U. S. 6's, 1856	106½
U. S. 6's, 1862	110
U. S. 6's, 1862—coupon	114½
U. S. 6's, 1867	115½
U. S. 6's, 1868	116
U. S. 6's, 1868—coupon	122½
Land Warrants	140a145
Arkansas 6's	52a53
Alabama 5's	91a92
Indiana 5's	83
Illinois 6's, 1870	65a68
Kentucky 6's, 1871	104½a106
Massachusetts sterling 5's	105a106
Massachusetts 5's, 1859	100½
Maine 6's, 1855	103
Maryland 6's	102½
Michigan	—
Mississippi	—
New York 6's, 1855	103½
Ohio 6's, 1860	109
Pennsylvania 5's	91

RAILROAD BONDS.

Atlantic and St. Lawrence, 6 per cent	85
Baltimore and Ohio, 1867	94½
Boston and Providence 6's, 1855	101
Boston and Worcester 6's, 1855, convertible	107½
Bost., Concord and Mont. 6's, 1860, mortgage	87½
Cheshire 6's, 1860	91½
Connecticut River 6's, convertible	89
Erie 7's, 1859	100
Erie 7's, 1868	105½
Erie income 7's	94
Hudson River 7's, 1853	101½
Michigan Central, convertible, 8's, 1856	104½
New York and New Haven	100½
Norwich and Worcester, mortgage, 1860	80a85
Old Colony, 1854	97½
Ogdensburg 7's, 1859	91
Portsmouth and Concord	80a85
Passumpsic 6's, 1859	94½
Rutland 7's, 1863	91
Reading mortgage, 1860	78
" " 1870	70
Sullivan, mortgage 6's, 1855	75
Vermont Central 6's, 1852	90
" " 6's, 1856	85
Vermont and Massachusetts 6's, 1855	86

RAILROAD STOCKS.

[CORRECTED FOR WEDNESDAY OF EACH WEEK.]

	Oct. 29.	Nov. 5.
Albany and Schenectady	89½	93
Atlantic and St. Lawrence	60a65	—
Androscoggin and Kennebec	30a35	—
Boston and Maine	104	103½
Boston and Lowell	108	109
Boston and Worcester	102	102
Boston and Providence	89½	86
Bost., Concord and Montreal	36	—
Baltimore and Ohio	67½	—
Baltimore and Susquehanna	34	—
Cheshire	47	47
Cleveland and Columbus	—	—
Columbus and Xenia	—	—
Camden and Amboy	—	—
Connecticut River	60	—
Delaware and Hudson (canal)	109	108½
Eastern	95½	95½
Erie	84	86½
Fall River	94½	94
Fitchburgh	109½	110½
Georgia	—	—
Georgia Central	—	—
Harlem	68	68½
Hartford and New Haven	123	—
Housatonic (preferred)	—	—
Hudson River	73	74½
Kennebec and Portland	50a55	—
Little Miami	—	—
Long Island	15	14½
Mad River	—	—
Madison and Indianapolis	90	93
Michigan Central	105	107½
Montgomery and West Point	—	—
Michigan Southern	—	—
Manchester and Lawrence	70	—
Morris (canal)	14½	15½
New York and New Haven	109	109½
New Jersey	—	—
Northern	67	68
Nashua and Lowell	107½	—
New Bedford and Taunton	108	—
Norwich and Worcester	57	48
Norfolk County	9	12
Ogdensburgh	33½	32½
Old Colony	66	65
Passumpsic	70½	72
Pennsylvania	—	—
Pittsfield and North Adams	95	—
Philadelphia, Wilm'gton & Balt.	27½	28
Petersburg	—	—
Richmond and Fredericksburg	—	—
Richmond and Petersburg	—	—
Reading	56	54½
Rochester and Syracuse	105½	107½
Rutland	45	43½
Stonington	52	44
South Carolina	—	—
Syracuse and Utica	123½	—
Sullivan	15a20	—
Taunton Branch	108	110
Troy and Greenbush	90	—
Tonawanda	—	—
Utica and Schenectady	127½	127½
Vermont and Canada	97	99½
Vermont Central	27	27½
Vermont and Massachusetts	26	27½
Virginia Central	—	—
Western	103½	103½
Wilmington and Raleigh	—	26
York and Cumberland (Pa.)	19½	—

Northern Indiana Railroad against the Michigan Central Railroad.

A motion was made before the Supreme Court this week to discharge the order for a stay of proceedings granted by Smith J. in this case, mainly on the ground that the appeal from the decision of the Circuit Judge granting the injunction, was a *nullity*. Smith and Jernegan argued the motion on the one side, and Crawford and Marshall on the other. The Court determined not to hear the main question until the commencement of the November term; so that the question as to the effect of this appeal yet remains undecided.—*Indiana State Journal.*

Superiority of Artificial over Natural Water Courses.

The Erie canal during the present season has remained in excellent order, giving us constant communication with the lakes. The Ohio, Indiana and Illinois canals have also been in good condition for the whole season, so that the entire section of country accommodated by these works has been able to keep up an unbroken communication with this city. On the other hand the great rivers of the west have been almost unnavigable, by reason of the severe and wide-spread droughts which have prevailed. These facts have thrown a largely increased amount of traffic upon the canals, and have attracted public attention to the superiority of these channels for the transmission of merchandise and produce over the western rivers.

We give the following from the New Orleans Commercial Bulletin, in confirmation of the above:

Here we are, says the Bulletin, a full month in the business season, and without any communication, we may say, with the interior, upon which we are altogether dependent for our trade. From the entire Ohio valley we are as much cut off as if a sandy desert intervened between the mouth of the river and Cincinnati; and from that portion of the country contiguous to Red river, we are for a season completely alieneted. Our western men, and our Red river cotton merchants, are groaning in the spirit of this unreasonable non-intercourse. We do not believe that there is another city in the civilized world, enjoying all the natural advantages that we do, which is so utterly destitute of spirit, energy, and disposition to improve them. A city that is, or rather was, the entrepot of the trade of fifteen states, comprising an area of country that for fecundity, richness of soil, and variety of resources, is without an equal on the face of the earth, the outlet of ten thousand miles of inland navigation, the largest exporting city, yea, larger than any two exporting cities in the Union, has not, in this age of improvement and progressiveness, a single mile of artificial communication, that brings a dollar of business to it. A drought, which is a casualty of not uncommon occurrence, has dried up all our interior rivers; all our resources are intercepted, even our common travelling facilities have been suspended; and yet, we are stupidly blind to our position. We are satisfied with what the Mississippi river brings us, and we think and act as the fatalists of Mohammedism, or the followers of that specious creed of the Materialists, "whatever is, is right;" and who believe that if the great Architect of the Universe had designed that his creatures should be benefitted by more easy and frequent means of intercommunication, He would have provided them. We have heard that there are honest, well meaning people, who believe that the construction of railroads and canals is irreligious, because in opposition to, and in contravention of the designs of the deity, and as a corrollary impugning omniscience. One would think, that our people were under the influence of this "higher law." We think it very probable that we have such casuists among us, who, when appealed to in behalf of those enterprises which are the fruits of sagacity, and the progressive spirit of the age, will compound for their laches and apathy, by some such convenient and unsubstantial excuses; for why or wherefore the moneyed man, the merchants, mechanics and operatives of New Orleans will not make some exertion to save themselves, we cannot comprehend, unless it be that they think it morally wrong to try to improve upon nature—to attempt an artificial communication which may vie with, or rival the mighty Father of Waters.

Wilmington and Raleigh Railroad.

The following is a statement of the operations of this road for the year ending Oct. 1 1851, viz:—

Amount rec'd from through travel....		$196,509 68
" " way "		75,350 61
" " freight on railroad.		93,348 93
" " freight, meals, &c., on steamboats...		16,383 83
" " Transportation of mails, rents, &c..		80,629 61
		$461,222 66
EXPENSES.		
Cost of transportation.....	108,783 54	
Railroad repairs.....	45,607 18	
Expense of steamboats....	122,617 18	
Office expenses.....	247 30	
Interest and exchange....	65,198 85	342,454 05
Net profits.....		$118,768 61

We find the total liabilities of the company on the 1st October, 1851, amounted to $1,133,055 15, consisting of the following items:—

English bonds at 5 per cent.....		$222,666 67
Bonds endorsed by the State of North Carolina, at 6 per ct.....		250,000 00
Amount due the Literary board of N. C.....		85,000 00
Mortgage bonds, (new issue,) for the purchase of iron.....	$520,000 00	
Less for bonds not issued in bank of Cape Fear...94,222 22		
Miscellaneous ...		220,770 30
		$1,133,103 85

The following exhibits the condition of the company's affairs on the 1st October, 1851:

Debt of the company.....		$1,133,103 85
Capital stock paid in.....		1,338,353 08
Balance of profits from commencement of operations to 1st Oct, 1851, after paying interest of debt.....		388,566 22
		$2,860,023 15
Cost of constructing and reconstructing road, real estate, &c.	$2,761,601 95	
Miscellaneous.....		$98,641 20
		$2,860,243 15

Virginia.

The Manassas Gap railroad company have appointed a delegation to the Convention which is to take place at Romney, in Hampshire county, on the 25th of this month, in reference to a connexion between Baltimore and Ohio railroad and Alexandria, by the Manassas Gap railroad.

A writer in the Georgetown, D. C., Advocate, is urging the propriety of a railroad from the point of rocks, along the margin of the Potomac, to that town.

Winchester and Potomac Railroad.—The Winchester and Potomac railroad company has declared a half yearly dividend of a 6 per cent. The revenue of the company for the year ending Oct. 1, 1851, was $88,426 07, being $1,623 61 more than that of the preceding year, and the largest ever received by the road. Out of this, the annuity of $5,000 to the State, and two dividends of 6 per cent. each, amounting to $20,996. have been met. The second of these dividends will be payable on the 1st of November, inst. The dividend of 12 per cent. per annum, the President anticipates, will be regularly kept up.

Steam Carriage for Plank and Common Roads.

The construction of the numerous plank roads which are now spreading over the country, has turned attention to the question of the practicability of using upon them carriages propelled by steam. Mr. J. K. Fisher, of 179 Broadway, has devoted much time to this subject, and has constructed a very ingenious model of a locomotive carriage, which combines some valuable improvements in its machinery. Of Mr. Fisher's invention, as far as any opinion can be formed from an examination of the model, there is good reason to believe that the carriage would work well on plank and paved roads.

In reference to the use of steam carriages upon common roads, we copy the following description of the carriage and machinery published in the last number of the Mechanics' Magazine.

The *practicability* of locomotion by steam on common roads is an established fact; several English inventors have run carriages which did efficient service, and were perfectly under control; they emitted no visible smoke or steam; made no noise except with the wheels; and they were not in any way disagreeable. But their *profitableness* is a point not yet established. Nor is the contrary proved by their failure to get into general use in England; for there are many reasons, apart from the defeats of the carriages, why they should not have done so well there as they might do elsewhere. First, railroads occupy all the long lines of travel. Where capital is abundant, and freight and travel such as they must be with a dense and active population, the hard iron rail makes the most economical road. Second, it is a well-known fact that those carriages were not managed with economy; some required three men to work them, a steersman, an engineer, and a fireman, who, besides his peculiar duty, worked the breaks. And third, a violent opposition from the agricultural interest, prompted by the consideration that they would diminish the demand for horsefeed, continually annoyed, and at last broke down the projector, Mr. Gurney, who ran carriages in the country.

In our country, for years to come, there will be long lines of travel upon which railroads will not pay a profit, owing to the high rate of interest, and the scantiness of the business; upon these lines cheaper roads must be used, as procursors to railroads. And it will be seen by the above report that a carriage may be so arranged that only one person will be required to manage it, thus saving the wages of two men,—which alone would afford a handsome profit on a carriage. As for the opposition of any parties, we apprehend that there is too much good sense to allow it.

But there is one new element, in this country, which above all others, will operate in favor of steam-carriages; we refer to plank-roads, which have not been used in England, nor anywhere until within sixteen years. The power required to draw a load upon them is about a third of what is required upon a good Macadamized road, upon a level; and they are usually graded so as to avoid steep ascents. According to Parnell (*Treatise on Roads,*) a pull of seventy pounds is required to draw a ton upon a Macadamized road in ordinary condition; on a plank-road a pull of twenty-three pounds will draw a ton, even when there is dirt upon it, as is usually the case. But if they were kept clean, as they would be if steam-carriages were in general use, probably a much less pull would serve; for upon stone tracks only twelve and a half pounds would draw a ton. Now hard planks, laid lengthwise, and kept smooth and clean, should not require much more power than stone tracks. We may, therefore, confidently expect that roads of this kind will be laid on the new lines of travel, and be used until the increase of business will warrant the perfecting of the grades, and the substitution of iron rails. Until this time we shall have many roads suitable for steam-carriages, which will require but one-third of the power required upon the English roads, upon which their steam-carriages worked.

The advantage of this may be briefly shown by

a statement of the weight and power required to run a small carriage, to carry four or six persons, upon roads of different kinds. Weight of the carriage six hundred pounds; machinery and water, about four hundred; load six hundred; total sixteen hundred. On a gravel road the pull, 147 lbs. per ton, will be 112 lbs. upon a level; to ascend a hill rising one in twelve, such as often occurs 133 pounds additional pull, making a pull of 245 pounds, which the engines must be capable of exerting. Suppose that the boiler is large enough to take the carriage up such a hill at three miles per hour, it will run at the following rates upon a level, upon different roads: On gravel, cutting off at half stroke, 9¼ miles; on a Macadamized road, 17 miles; on planks. 27 miles,—the consumption of fuel per hour being constant. Hence it appears, that the same force of steam, or fuel, besides overcoming the friction and other resistances of the machinery, will work sixty per cent. more effectively on planks than it will on Macadamised roads, and nearly three times as effectively as on gravel roads, so far as increase of speed is considered.

If, instead of increasing the speed, we increase the load, we may draw upon the Macadamized road, upon a level, an additional carriage weighing with its load twenty-one hundred pounds, and carrying nine passengers. Upon a plank-road, we may drew six carriages weighing with their loads sixteen hundred each, and carrying altogether forty passengers. Thus, as to the cost of the motive power to do the same work, it is more than three times greater on the gravel than on the Macadamized road, and eleven times greater than on the plank-road; and on the Macadamized road it is three and a third times greater than on planks. These considerations show that it is not unreasonable to expect a profit upon plank-roads, even though it were certain that none could be made upon Macadamized roads.

As to what may be done on common gravel roads, and others of a quality, it is only claimed that carriages may be run over them at a slow rate, with a large consumption of fuel. This has actually been done in England. So, if it be required that a carriage should deviate from the good road, for the sake of going to a place on a bad one, it can do so.

In the foregoing estimates we have proceeded upon the supposition that the grades should correspond to the quality of the roads. This is true to a certain extent, the plank-roads being graded with great care; and on the prairies there are some which scarcely depart from a level; but in practice the loads would be lighter, and the speed greater, than we have assumed in the latter view: a compromise between the greatest speed and the greatest load, suited to the exigencies of business, would be made in each case.

We have also supposed that the cut off would be at half-stroke. This is in accordance with the views of several eminent engineers, who are extremely fond of simplicity, even in the light and subsidiary parts of machinery; and if the work were upon level grades, with resistances varying but slightly, there might be no sufficient reason to pay the first cost, and perhaps the cost of repairing, of a complex apparatus for varying the cut-off. But as the total resistance, including the back-pressure in the cylinders, the friction, etc., will be ordinarily not more than a fifth of what the engines must be able to overcome, in order to get over hills on bad roads, we think that, upon mature consideration, the variable cut-off will be regarded as indispensable, where speed is required. The following comparison will show the advantage of it:—

The power necessary to run on a level, on gravel, is ·52 of what is required to ascend a hill as we have described. By reference to tables of expansion we find that, the pressure remaining constant, we may cut off at a fifth, and have sufficient power to overcome the resistance. Hence we may run fifteen miles per hour, on a level, with a boiler that will go up hill* only at three miles, when working at full stroke; and we have before stated that when cutting off at one-half, we can run but nine and three-quarters. On a Macadamized road the power required is only ·3 of what is required to ascend a gravel hill. By reference to tables we find that cutting off at one-eighth will give ·399 of the force of a full cylinder. Hence we may run twenty-four miles per hour, and yet diminish the pressure considerably. But when cutting off at half we can run only seventeen miles, at the same cost. On planks the resistance is less than a fifth; and cutting off at a tenth will give nearly a third as much power as the full stroke; hence we may run, if required, nearly fifty miles per hour, on a smooth plank-road, with the fuel required to run twenty-seven miles in the same time when working at half-stroke. Or, if such speed be not required, we may check the fire, which will allow the heat to be more effectually abstracted from the smoke; and in either way fuel may be saved.

* By *hill* is to be understood a rise of 1 in 12, or 440 feet per. mile.

All the advantage of working expansively the English carriages neglected, which Mr. Fisher thinks is one cause of their failure. According to Mr. Fisher's statement, working at "full stroke will produce on a level, on gravel, 5·7 miles per hour; on a Macadamized road, 10 miles; and on planks, 16 miles: in a tabular form, speed in miles per hour,

	At full stroke.	Half stroke.	Cut off varied.
On a gravel hill....	3		
" " level...	5·7	9·75	15
Macadamized road.	10	17	24
Plank road.....	16	27	49

This shows that to attain the moderate speed of fifteen miles per hour, at which he usually ran, he must have had one half more heating surface and water and fuel than are required; but he ran up hill at ten or twelve miles, consequently his heating surface must have been more than three times what was needed, and, of course, a proportionate part of the load displaced—in other words, the profit diminished."

The following is a description of the engine and carriage:

The boiler, engines and pipes are all outside; the pipes being on the right hand side for convenience. The cylinders are inclosed in casings of bright metal. The motion is given first to a slender crank shaft, whose cranks serve to keep the ends of the connecting roads in circular paths; and from the connecting rods it is transmitted by coupling rods to the main cranks upon the axle of the driving wheels. The axle is attached to the fixed bearings of the small crank shaft, by two rods, parallel to those that couple the crank pins. The joints between the connecting rods and coupling rods are so formed that their friction is only equal to that of the joints between the connecting rods and piston rods; and all the joints of the connections allow of lateral and twisting motion. The uses of this combination of rods are, to prevent a rocking and shaking motion, and to allow of free play to the axle. Mr. Fisher claims the combination as his invention:—a part of it, however, the small crank shaft, has been patented in England; but he has evidence of priority of invention. The carriage is suspended by spiral springs from the main axle, and by the springs which are jointed to the spindle in which the fore axle is held, by a joint that admits of a limited motion in the plane of the spindle. To the top of the spindle a lever is fixed, which passes through a slot into the carriage, by means of which the carriage is steered by a person upon the middle seat, the end of which passes thro' the side, and serves as a step. The back seat is on the same level. The front seat, which is to be used only for light persons, is formed by the boards to which the engines are bolted. In carriages of this size, which are intended for hackney coaches, the front of the covering will be at the back part of these cross boards; and the steersman will sit upon this seat outside. This way of attaching the engines is believed to be new, also the attachment of the steering wheels, and they are claimed as the patentable property of the inventor. The bottom of the carriage is intended to run about six inches from the ground: the driving wheels are five feet high; the steering wheels three and a half feet, the distance between them about sixteen inches; and the whole length of the carriage is twelve and a half feet. The engines are reversed by means of a valve.

Mr. Fisher's improvements have been submitted to a committee of the American Institute, composed of James Renwick, Henry R. Dunham, and H. Meigs, and also to a committee of the Mechanics Institute of this city, composed of C. W. Copeland, J. Stone, and James Bogardus, all of whom enjoy a high reputation as scientific and practical men, and who speak in the highest terms of the general design of the carriage and of the improvements effected in the machinery, particularly in reference to the cut-off which they say "is a very ingenious contrivance, so arranged to cut off the steam at any part of the stroke."

We are glad to see attention turned to the subject of introducing steam carriages upon plank-roads, and see no reason why the experiment should not prove entirely successful.

Kentucky.

Maysville and Lexington Railroad: County Subscriptions.—A case has just been decided in the Mason county circuit court, Kentucky, touching the validity of subscriptions voted by towns and counties to railroad companies. The above county voted to subscribe $100,000 to the Maysville and Covington railroad. The right to make the subscription was resisted by a portion of the inhabitants, who filed a petition for an injunction against the subscription on the part of the county court. The judge, before whom the case was tried, decided that counties *were competent*, in their *corporate* capacity, to subscribe to the stock of railroads, upon the same principle that they could take any ordinary steps for the promotion of their own good: such as building a court house, or any ordinary road; that the legislation of Kentucky was full of precedents sustaining this right.

We are glad to find this matter settled in Kentucky, and we hope to see it disposed of in every State where county subscriptions are allowed. The contests to which such subscriptions have given rise, have tended to throw a certain degree of discredit on such securities, which has operated against their favorable negotiation. We have no doubt that in every State these subscriptions will be sustained. They have now become so common, and such vast quantities have been disposed of, and their proceeds applied to our public works, that the argument, "*ab inconvenienti*," will, and should have a strong influence upon the construction of law. Notwithstanding this, many of our best lawyers question the right of counties to connect themselves with such enterprises as railroads, which are purely commercial in their character. Such objects, say they, do not come within the scope of town or county organisation, which, they contend, is purely conservative in its character, and does not contemplate that such bodies shall engage in commerce, in manufacturing, nor in the building of railroads; especially where such roads are beyond their limits. If the question could be now tried independent of all consequences, the right perhaps, might be successfully resisted. But the right to make such subscriptions has so long been acquiesced in, and has become so universal, they must and will everywhere be sustained.

Louisville and Cincinnati Railroad.—We understand that some of our capitalists have determined upon the construction of this work. It is proposed to commence it at Eminence on the Frankfort road. Surveys, we learn, are about to be commenced upon the route and application will be made to the legis-

lature for a charter. The enterprise is a very important one, and we trust that the sanguine hopes of its friends may be fully realised by the completion of the work at the earliest possible moment.

Harrodsburg Branch Railroad.—A survey of the route of this road has been completed. Two lines were run, one from Harrodsburg to the Louisville and Frankfort railroad, at Bagdad, and the other from Harrodsburg to Frankfort; the first line being 43, and the latter 32 miles long. The first named route is a very favorable one, with no grade exceeding 50 feet to the mile. The grades on the latter will reach 80 feet to the mile, with much heavy work. The estimated cost of the Bagdad route is $708,262, or $16,510 to the mile; on the Frankfort route, $844,672, or $26,232 to the mile.

We give the following from the report, in reference to the business prospects of the road:

The business of this branch, when completed, will be very heavy. It will be the most convenient channel of trade and travel for 30,000 people, one half of whom occupy lands not inferior to any in Kentucky, and the other half occupy a district so remote from, and so inaccessible to, any commercial point, that its agricultural and mineral resources are valueless, without the intervention of railroad transportation.

The promised advantages in the construction of this branch are far greater than ordinary. The route tapping the Louisville and Frankfort railroad at Bagdad, is perhaps the cheapest and best adapted for a road of light grades and open curves, of any route of its length in north Kentucky. Its permanency would be unsurpassed. There would not be a wooden bridge on the line, nor one of stone over 30 feet span.

The business of the road is guaranteed against diversion to other points by the *geographical* position of the country, and its locality in reference to Louisville. Although the country into which the road is intended to penetrate would derive the greatest benefit, still other parties have a deep interest. It will afford more freight, and perhaps half as many passengers as the Louisville and Frankfort road will obtain from all other sources, and it will permanently secure to Louisville an additional trade, equal to that which she would independently receive on the present line of road.

Covington and Maysville Railroad.—The long controversy which has been pending between these roads, in reference to a common track from Paris to Lexington, has at last been amicably adjusted. This portion of the line is to be common to both roads, Paris being their point of convergence.

Maysville and Big Sandy Railroad.—The line of this road is being surveyed under the direction of C. B. Childs, Esq.

Distances from New York to Chicago, via Erie, and the Albany and Buffalo Roads.

New York to Albany	144	miles.
Albany to Niagara Falls	326	"
Niagara Falls ro Detroit	228	"
Detroit to Chicago	282	"
	980	"
New York to Dunkirk	469	"
Dunkirk to Erie	46	"
Erie and Ohio State-line	26	"
State-line to Cleveland	71¼	"
Cleveland to Toledo, via Sandusky	110¼	"
Toledo to Chicago	243	"
	966	"

The distance on the northern route will soon be reduced to 300 miles between Albany and Niagara Falls, and the Erie route will also be eventually abridged by carrying the Erie road direct to Erie from Little Valley, and avoiding the long current by way of Dunkirk. The whole northern route can be said to have much advantage in length of line. Both of them, we have no doubt, will have as much business as they can accommodate.

Coal Trade for 1851.

The Philadelphia Ledger says that the anthracite coal trade continues active, and prices firm.—The tonnage for the year will be very large, and from present indications, will leave no surplus at the opening of the next season's business. The Schuylkill Navigation company has done the least of any of the three lines centering at Philadelphia, having brought down rather less than half a million tons. Its works have capacity, however, for a much larger business, and the future may show the necessity for doubling the present season's tonnage. The Lehigh Navigation company has already brought to market about 900,000 tons, and by the end of the present month will reach, and may probably exceed the million tons calculated on at the beginning of the season. This work has done a steady, and indeed a large business—nearly, or quite, we understand, up to its present capacity. If a larger tonnage is contemplated, the number of boats will have to be increased, and the Delaware division widened. With a continuance of the existing demand for Pennsylvania's great staple, the State should see that her works interposed no obstacle to the freest and fullest trade. The Reading railroad has done a very heavy business for the season, up to Thursday, being nearly a million and a half tons; making by the three lines, nearly three millions tons of anthracite coal brought to market. Their aggregate annual business will reach three and a quarter, and it may be three and a half millions of tons. This is an immense business, and estimating each ton of coal to be worth three dollars, gives us the very large aggregate of ten millions of dollars.

Baltimore and Ohio Railroad.

The following is a list of the Directors of this road for the present year, viz:—

John Hopkins	Edward Patterson
John I. Donaldson,	James H. Carter,
Samuel W. Smith,	Fielding Lucas, Jr.
Columbus O'Donnell,	James Swan,
William M'Kim,	Charles M. Keyser,
Andrew Gregg,	Nathan Tyson.

Thomas Swann, President.

Indiana.

Central Railroad.—The grading of the entire line of this road is now under contract, and it is expected the road will be in operation to the Ohio State line in the spring of 1853.

Missouri.

Hannibal and St. Joseph's Railroad.—The work of construction has been commenced upon this road at Hannibal. Subscriptions to the amount of $1,000,000 having been obtained, making available the State loan for an equal sum. The length of this road cannot be far from two hundred miles. It connects the Mississippi and Missouri Rivers at the above named towns. It traverses the finest portion of the State, and as sufficient means are now provided for its vigorous prosecution, we expect to see it finished in advance of the southern line from St. Louis.

Ohio.

Akron Branch Railroad.—The work on the north end of the Akron branch is progressing finely. A large force is employed and the contractors are inspired by a laudable purpose to fulfil their contracts. The work on this end, owing to various causes, has not been pushed as was desired by the directors and citizens generally; but it is the purpose of the former to spare no pains to have the connection completed to this point next spring.—Col. Perkins is indefatigable in his labors as president of the company, and he is heartily backed by his associates and the efficient corps of engineers. Some of the iron has already arrived in the country and is on its way here.—*Akron Beacon.*

Green Mountain Tunnel.

It is stated that the directors of the Troy and Greenfield railroad have contracted for the machine by which the labor of tunnelling the Hoosic mountains is to be performed, and that the forfeitures are pledged on the part of the company and the owners. The latter bind themselves to excavate twelve feet per day.

Lackawanna and Western Railroad.

This road, says the Binghampton Republican, extending 58 miles from the Lackawana coal beds, at Scranton, Pa., to Great Bend, on the Erie railroad, was opened on Monday last. The completion of this spur to the great thoroughfares, presents a new era in the experience of Western N. York. Coal will now, in all probability, supercede wood, as the ordinary article of fuel, throughout the whole of that valuable market. The supply for the present season, some 45,000 tons, has been ready for shipment for a month past, and is now probably on its way to consignees. The Oswego Times says, the coal is fully equal in quality, if not superior to Lehigh. A coal train of 25 cars, loaded with five tons each, with superior anthracite coal, from Scranton, made its first trip to Ithaca on Saturday last, arriving about 3 o'clock. It is from this point (Ithaca) that the railroad is projected to run to Sodus Bay, on the lake, affording an important shipping outlet from the coal mines.

To Stone Masons.

THE NEW ALBANY AND SALEM RAILroad Company have about 10,000 c. yards of Abutment Masonry to let at private contract, to be completed by the 1st of July, 1852.

To contractors who can produce testimonials of character for ability as STONE MASONS, fair, remunerating prices will be given.

Early applicants, by securing the work now offered, will gain advantages over competitors for the erection of an additional 15,000 yards, to be let out early next spring, in bridging the streams between Bedford and Michigan City, via Bloomington, Gosport, Crawfordsville and Lafayette, (the most productive and healthy region in Indiana,) by the knowledge they will have acquired of the resources of the country.

Application may be made in person, or by letter addressd to the undersigned, at New Albany, Indiana. S. B. WILSON, Engineer.

Engineer's Office, New Albany, Sept. 29th, 1851.

Engine Waste.

CLEAN WASTE for Locomotive and Steamboat Engines, in lots as wanted; also, superior Steam Packing. Orders, with explicit directions for forwarding, should be addressed to

J. MORTIMER HALL,
36 South st., New York.

November 1. 3m

Notice to Contractors.

Atlantic and St. Lawrence Railroad.

THE Sixth and last Division of the Atlantic and St. Lawrence railroad will be placed under contract on the 10th day of November next, and proposals will be received until that date by the subscribers, at Sargeant's Tavern in the town of Northumberland, N. H.

Plans and profiles will be in readiness for examination at the Engineer's Office in Northumberland, on and after the 1st of November.

This Division extends from the Connecticut River in the town of Stratford, N. H., to the boundary line of Canada, a distance of about forty miles.

No Spirituous Liquors will be allowed on the work, and bids of contractors who have heretofore failed to pay their laborers, on this, or any other work, will not be considered.

Cash payments will be made monthly, reserving ten per cent. until the final completion of the contract.

JOHN M. WOOD & CO.

October 14th, 1851.

To Contractors.

OFFICE WILMINGTON & MANCHESTER R. R. Co., Marion C. H., S. C., October 18, 1851.

SEALED PROPOSALS will be received until the 15th of December next, for the Piers of a Bridge across the Great Pee Dee River. The job comprises four piers, one a very heavy pier for a draw, and the sinking of cast iron hollow piles by "Dr. Pott's Pneumatic Process," for forming foundations. The plans and specifications of the piers will be exhibited by the Secretary of the Company at Marion Court House, and by the Resident Engineer, L. J. Fleming, Esq., at Wilmington, North Carolina. WALTER GWYNN,

Chief Engineer Wilm. and Man. R.R.

November 1. Richmond, Va.

Best Cast Steel Axles & Tires,

(A NEW ARTICLE,)

For Railroad Carriages and Locomotives.

THE quality of this Steel is sufficiently attested in the announcement that it has carried off the first prizes awarded at the World's competition of 1851, in London. The axles are in general use on the Continent, and are now offered in competition with any other that can be produced; and to be tested in any way that may be desired by the Engineers of the United States, either by impact or by torsion. This Steel is manufactured by Fried Krupp, Esq., of Essen, in Renish Prussia, represented in the United States by

THOS. PROSSER & SON,
28 Platt st., New York.

November 1.

Railroad Iron.

THE undersigned are prepared to enter into contracts now at specific prices, to deliver Railroad Iron during the coming Winter and Spring, free on board at the shipping ports in Wales, or at ports in the United States.

CHOUTEAU, MERLE & SANFORD,
Sept. 30, 1851. No. 51 New st.

Notice to Bridge Builders.

PROPOSALS will be received at the Engineer's Office at Charlottesville, Va., on the 14th of November, for the construction of a bridge over Mechum's river, on the Virginia Central Railroad. The length of the Bridge will be 350 feet, in three spans. Height of Bridge above the river 70 feet. Bids will be received on Howe's plan and Town's lattice. The work to be finished by the first of July, 1852, but the timber to be procured at once. Plans and specifications will be ready to be exhibited on the 28th inst.

T. COLDEN RUGGLES,
Civil Engineer Va. Central R. R.

Charlottesville, Oct. 11, 1851.

N. B.—Good timber may be procured in the vicinity of the line of the road, which will be in operation to a point 3 miles from the bridge.

SIX HUNDRED THOUSAND DOLLARS NORTHERN INDIANA RAILROAD 7 PER CENT MORTGAGE BONDS.

The Northern Indiana railroad company offer for sale $600,000 of their 7 per cent. mortgage, bonds with interest coupons annexed.

They are in sums of $1,000 each, payable August the 1st, 1861, with interest at 7 per cent. semi-annually on the 1st of February and 1st of August, payable at the Mechanics' Bank in this city, where the principal is also payable, and are secured by a mortgage to Shepherd Knapp, Esq., of New York, in trust for the bondholders.

They are issued under acts of the Legislature of Indiana, authorising their issue and the mortgage as above, to secure the same. The amount of bonds to be thus issued under the mortgage, is limited to One Million of dollars, $400,000 of which have been disposed of, and $600,000 are now offered for sale.

The mortgage covers the whole road of the company in Indiana, and is the first and only lien thereon.

This embraces the entire line from its connection at the State line of Michigan with the Michigan Southern road (of which it is an extension) through Elkhart, Mishawaka, South Bend, and Laporte, to the boundary of Illinois, about 100 miles: a line to and from Michigan city of about 25 miles, connecting with the same, and a line of 10 miles from Elkhart to Goshen—making in all about 135 miles of road.

The company hold also, by lease and contract, a line from the western boundary of Indiana to Chicago, of about 13 miles.

By an existing contract between this company and the Michigan Southern company, a continuous line of railroads is formed from the head of Lake Erie, at Monroe and Toledo, in a very direct course through Southern Michigan and Northern Indiana to Chicago—a distance from Monroe of 246 miles, and from Toledo of 243—all to be under one superintendence and management, and for all practical purposes forming one joint interest.

At Chicago this line of road connects with the "Chicago and Rock Island road," to be extended to the Mississippi river, at Rock Island, 180 miles long, and which is under contract.

Also, with the Chicago and Galena railroad, about 84 miles of which is now about completed and in use, the entire line of which, it is expected will be completed to the Mississippi river in all next year.

Also, with the Illinois Central railroad, to run from Cairo, at the mouth of the Ohio river, to Chicago.

At Toledo it unites with the great chain of railroads along the shore of Lake Erie to Cleveland, Dunkirk and Buffalo. This whole south shore line will probably be completed in the course of the next season, and parts of it will be opened for use the present year.

The whole line of roads of this company is under contract; the grading and bridging on 60 miles are completed, and the rails laid on 50 miles of it. The iron has been purchased for the whole road from the boundary of Michigan to Chicago, and most of it is delivered on the line ready for use. The road is finished 30 miles to South Bend, to which point the cars are now running from Monroe and Toledo, and the work of laying down the rails is in active progress upon the residue of the line. The main line from the East to Laporte (some 56 miles) will be opened next month, and the whole road from Lake Erie to Chicago, in March next, when the journey from Lake Erie to Chicago, may easily be made in 8 hours.

The means for the construction and equipment of the Northern Indiana road are provided by stock and bonds.

Nearly one million of dollars are subscribed to the stock, about $850,000 of which is taken in New York and the Eastern States, the remainder along the line of the road. An average of 50 per cent. has been paid on these subscriptions, and the residue is being regularly paid at the call of the company.

For providing the remaining means required to complete the work, the company have issued their Mortgage Bonds to the amount of one million of dollars in all, as above stated, proceeds of most of which are wanted to pay for iron rails, machinery, &c.

The mortgage empowers the trustee, in case of failure to pay either interest or principal, to take possession of the road, with its equipments, and receive its earnings, or to sell the same, on due notice, and apply the proceeds in payment.

That this road will prove one of great usefulness and profit will at once be seen by reference to a map of its line and connections, being an essential link in the great chain of railways from the city of New York to the Mississippi river along the southern extremity of the two great Lakes, traversing as it does one of the most productive agricultural regions in the United States, while its cost per mile will be less than one-half the usual cost of railroads of the same class in the Eastern States. As a local road alone, giving an outlet to the productive region it traverses, it is confidently believed that it will pay a large profit upon its cost without reference to its connections.

The proof of this is found in the earnings of the Michigan Southern railroad for the past five months which, until its connections are formed is to be regarded as a local road, and is of about equal length with the Northern Indiana road, and traverses a country not more productive, viz:—

For May, 1851.	$24 427	For August, 1851.	24,196
For June, do....	22,511	For September, do.	35,217
For July, do....	20,603		
Total.....			$126,954

It will be thus seen that the security offered is of the highest character.

Sealed proposals will be received for any amount not less than $1,000, until the 12th day of November next, at 3 o'clock P. M.

Proposals may be addressed to WINSLOW, LANIER & CO., No. 52 Wall-street, or E. C. LITCHFIELD, Treasurer of the Company, No. 47 Beaver-st., indorsed "Proposals for Northern Indiana Railroad Bonds."

Twenty-five per cent. of the purchase money will be required to be paid immedialely upon acceptance of the bids; and the remainder in equal payments on the 25th of November and the 10th of December next. Any purchaser will be at liberty to pay in full at once, and interest upon the bonds will run from date of payment.

Three hundred thousand dollars (one-half the amount now offered) will be disposed of absolutely and without reserve, to the highest bidders.

The company reserve the right to withdraw the remainder, if the offers are not satisfactory.

All necessary information in relation to the bonds together with maps, may be obtained by the calling on Winslow Lanier & Co., or E. C. Litchfield, at either of which places copies of the bonds and mortgage may be had.

GEORGE BLISS JOHN STRYKER.
EDWIN C. LITCHFIELD, CALVIN BURR,
HUGH WHITE, Committee of the Directory,
New York, Oct. 20, 1851.

and are bringing them into general use upon their road.

One year's experience with the above improvement, has fully convinced me that there has never been anything offered to the public for that purpose which possess such intrinsic value; int act, this is an improvement which seems to overcome all the difficulties found in all the various kinds now in use. It possesses very many advantages over all others: Some of which are [first] the first cost is much less than that of most boxes in use. [Secondly] 75 per cent is saved in oil; one gill applied to each Journal once a month, or one quart to an eight wheel car, is all these boxes require per month [Thirdly] no dust can gain access to the Journal, which is constantly lubricated with clean oil; hence the saving in repairs of Journals and composition bearings, is a matter of importance. [Fourthly,] its construction is truly simple—not complicated, having nothing liable to become loose by constant and severe service. [Fifthly] for convenience there is nothing which approaches this improvement.—The composition bearings may be removed from the Journals of an eight wheel car, by one man, and returned, or duplicates, in twenty minutes, while under the car: the same would require two men, at least half a day with other boxes in use.—The trucks and wheels using these boxes, are free from oil and dirt, usually seen upon all railroad cars, at great expense to the corporation.

NATH'L JACKSON.
Supt. Car Building and Repairs, F.R.R. Co.

—

Boston, March 9, 1849.

I hereby certify, that I have examined a box for Car Journals, invented by Mr. Lightner of Roxbury, Mass, and I have thought so well of it that I have adopted it on our railroad, I have known of its success on other roads.

S. M. FELTON,
Supt. F. R. R.

—

Office of the Central R. R., N. J., Elizabethtown, May 1849.

H. F. ALEXANDER, Esq.,

Dear Sir:—Your favor, [wishing to be informed how we liked Lightner's patent axle boxes for R.R. Journals,] has been duly received; in answer we would say, we have used the boxes on Locomotive tenders one year, more or less, and on our cars some six months. I consider them the best boxes in every respect, I have ever used, or even seen used on any other roads—for safety, durability and the economy pertaining to all the details connected with the boxes and Journals of R. R. Car wheels; and we shall adopt them upon this road.

Yours Respectfully,
JOHN O. STEARNS.
Supt. Central Railroad Co., N. J.

—

Manchester, N. H., Nov. 1st, 1850.

H. F. Alexander, Sir,

I have used "Lightner's Boxes" under all the Cars of the Manchester and Lawrence railroad, and feel no hesitation in saying that I think them to be the best boxes now in use.

Yours, &c.,
THEODORE ATKINSON, Agent.

—

Cheshire R. R. Office, Keene, March 5th, 1851.

Mr. H. F. Alexander,

Sir,—Lightner's Patent Boxes have been used on the Cheshire R. R. about a year, and have given the highest degree of satisfaction.

All the Passenger Cars now in use, and a considerable number of Merchandize Cars are furnished with them, and they will take the place of the Common Boxes on all the cars as fast as circumstances will permit.

Very Resp't.
L. TILTON,
Supt. Cheshire R. R.

—

Boston and Worcester Railroad, Boston, April 1st, 1851.

H. F. Alexander, Esq.,

Dear Sir,—Lightner's Patent oil saving box for railroad cars, has been adopted by this corporation; we are taking out the common and substituting the Lightner's at the rate of fifty boxes per month; it will soon take the place of all others, as it is decidedly preferable to any heretofore used by this corporation.

G. TWITCHELL, Supt.

Statement of amount of oil used on 32 8-wheel freight cars, on the Boston and Providence Railroad (with Lightner's Boxes) from March 10, 1849, to February 27, 1851, and upon 12 8-wheeled passenger cars from September 8, 1849, to February 27, 1851.

FREIGHT CARS.

Amount Oil.	No. months.	Amount Oil.	No. months.
1.—21 pts.	10	17.—23½ pts.	14
2.—19 "	6	18.—23½ "	11
3.—25 "	13	19.—36 "	21
4.—18 "	7	20.—22 "	10
5.—22 "	12	21.—38½ "	24
6.—24 "	13	22.—29 "	23
7.—20 "	11	23.—35½ "	23
8.—21 "	11	24.—37½ "	23
9.—23½ "	10	25.—51 "	23
10.—21 "	9	26.—31½ "	24
11.—20 "	9	27.—28½ "	23
12.—21½ "	11	28.—36 "	23
13.—19 "	8	29.—50½ "	24
14.—25½ "	17	30.—50 "	23
15.—20½ "	10	31.—41 "	23
16.—31 "	18	32.—39½ "	23
		Total, 925½ pts.	510

PASSENGER CARS.

1.—19½ pts.	18	7.—30 pts.	18
2.—25½ "	18	8.—25½ "	18
3.—33½ "	16	9.—29 "	18
4.—19 "	15	10.—46½ "	17
5.—15 "	15	11.— 9 "	9
6.—22 "	18	12.—65½ "	17
Total, 340 pts.			197

Averaging 1 4-5 pints of oil for freight, and 1 7-10 for passenger cars per month only!

All orders and enquiries promptly attended to.

BRIDGES & BROTHER,
No. 64 Courtlandt st., New York.

July 25, 1851.

Trautwine on R. R. Curves.

By JOHN C. TRAUTWINE, Civil Engineer, *Philadelphia, Pa.*

JUST published, accompanied by a Table of Natural Sines and Tangents to single minutes, by means of which all the necessary calculations may be performed in the field.

This little volume is intended as a field-book for assistants; and will be found extremely useful, as it contains full instructions, (with wood cuts) for laying out, and adjusting curves; with Tables of Angles, Ordinates, etc., for Curves varying from 13 miles, down to 146 feet Radius.

A portable Table of Natural Sines and Tangents to minutes, has for a long time been a desideratum among Engineers, independently of its use in laying out curves.

The volume is neatly got up in duodecimo; an handsomely bound in pocket-book form.

Sold by Wm. Hamilton, Actuary of the Franklin Institute, Philadelphia. Price $1.

Also, "*Trautwine's Method of Calculating Excavation and Embankment.*"

By this method, which is entirely new, (being now made known for the first time) the cubic contents are ascertained with great ease, and rapidity, by means of diagrams, and tables of level cuttings. Thin octavo; neatly half bound, $1. For sale by Wm. Hamilton.

June 28, 1851.

Railroad Iron.

CONTRACTS made by the subscribers, agents for the manufacturers, for the delivery of Railway Iron, at any port in the United States, at fixed prices and of quality tried and approved for many years, on the oldest railways in this country.

RAYMOND & FULLERTON, 45 Cliff st.

CORROSIVE SUBLIMATE.

THIS article now extensively used for the preservation of timber, is manufactured and for sale by POWERS & WEIGHTMAN, manufacturing Chemists, Philadelphia.

Jan. 20, 1849.

To Chief Engineers, Directors of Railroads, Canals, etc.

A Civil Engineer and Surveyor, who has been professionally engaged under the British Government, East India Company, etc., is desirous of obtaining employment as an Assistant. No objection to the South or West. Address for one month to C. E. & S., American Railroad Journal office.

August 16, 1851.

To Engineers.

A NEW WORK on the Marine Boilers of the United States, prepared from authentic drawings, and illustrated by 70 engravings, among which are those of the fastest and best steamers in the country, has just been published by B. H. Bartol, Engineer, and is for sale at the store of

D. APPLETON & CO.,
Broadway

September 1, 1851.

Pneumatic process for making Foundations for Bridges, Piers, etc.

THE Attention of Engineers, Contractors, and Bridge Builders, etc., is directed to this method of forming secure foundations. Hollow Cylindrical piles from 8 inches to 10 feet in diameter may be sunk through sand, mud, clay, etc., to any required depth, and filled with concrete or masonry.

The efficacy and economy of the process has been demonstrated in the construction of numerous permanent works, at a much less cost than the use of any other method. (See evidence in Parliamentary enquiry, Railroad Journal, April 19, 1851.)

Contracts made, or licenses granted for the use of the invention in any part of the United States, by

CHARLES PONTEZ,
34 Liberty street, N. Y.

LOWMOOR IRON.

THE *LOWMOOR* IRON COMPANY having appointed WM. BAILEY LANG their sole agent in America and Canada, he is now prepared to receive and execute all orders for Railway Tire Bars, bent, welded, and blocked Railway Tires, Axles, Piston Rods, and Boiler Plates. Also, plain, angle, rivet and every other description of Lowmoor Iron.

All communications respecting the above are requested to be sent to Wm. Bailey Lang, at his Steel Warehouse, No. 9 Liberty Square, Boston, or to the Lowmoor Iron Works, Bradford, Yorkshire, England. 30th Sept., 1851.

RAILROAD SPRINGS. Fuller's Patent India-rubber Springs.

PRICE reduced to 50 cents per pound. The owners of this Patent now manufacture the Springs in their own Factory, and guarantee that each spring shall perform its required duty.

Purchasers guaranteed against adverse claims. They may have full confidence in the working qualities of the springs.

The suits brought against Ray & Co., will soon be brought to issue, and we await the result with satisfaction, having full confidence in the pure administration of the Laws.

The long advertisements put forth by Ray & Co. about prior invention of the spring are worthless; he has not proved prior invention, and cannot sustain his patent in a Court of Law.

For the owners of Fuller's Patent,
G. M. KNEVITT,
23 Courtlandt st., New York.

October 7, 1851.

Railroad Iron.

THE undersigned, Agents for British Manufacturers, continue to sell Railroad Iron of the best quality, and of any weight or pattern required deliverable at any part of the United States or Canada.

They have now on hand, ready for delivery a New York:

2,000 tons of an approved pattern, weighing abou 60 lbs. to the yard.

WM. F. WELD & CO.,
42 Central Wharf, Boston.

THE Fourth Annual Exhibition of AMERICAN MANUFACTURES, by the MARYLAND INSTITUTE *for the Promotion of the Mechanic Arts*, will be opened in Baltimore on the 20th October, 1851.

The Exhibition will be held in the SPLENDID NEW HALL of the Institute, (fronting on Baltimore street) now being rapidly completed. Their edifice is centrally situated, chaste in its architecture, solid in its construction, and is *by far the largest and most complete building in the United States, devoted to the Mechanic Arts.* It may be added that this building is 355 feet long by 60 in breath, with an average height of 68 feet, containing some twelve apartments, the largest of which is 255 feet by 60, and that the cost will be over $70,000.

To this Exhibition, the Managers ask the attention of all engaged in industrial pursuits throughout the country, and cordially invite them to contribute specimens of their best productions for public inspection, and to compete for the prizes offered by the Institute. These prizes consist of GOLD and SILVER MEDALS, DIPLOMAS, etc., which were last year distributed as follows:—*Gold Medals*, 16; *Silver ditto*, 90; *Diplomas*, 60; besides 85 articles of Jewelry, etc., to ladies. *Fair play will be scrupulously observed towards all*, and every facility of Steam power, shafting, fixture, labor, &c., &c., will be amply provided *free of expense.* The machinery will be under a special superintendent, and a fine display of it is looked for. The last exhibition of the Institute was visited by more than 40,000 persons, and with their vastly improved accommodations and alterations, this number will be doubled at the coming display, embracing many Virginians, Pennsylvanians, and other strangers from the South and West.

Joshua Vansant, President.
Ed. Needles, } Vice Presidents.
F. A. Fisher, }
Samuel Sands, Rec. Sec'y.
Wm. Prescott Smith, Cor. Sec.
F. J. Clare, Treasurer.

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(☞ The last nine *in Italics* are the Committee on Exhibition.)

The Hall will be opened for the reception of goods on MONDAY, *13th October*; on the next Monday, 20th, at 7 P. M., the Exhibition will be formally opened to the public, and will *positively* close on Wednesday, 19th November. Articles *for competition* must be in the Hall by *Thursday* night, Oct. 16, *unless delayed in shipment after starting in ample time.*

Those who intend depositing, will give the Committee or the Agent, notice as early as possible, stating *the nature of the goods, and probable amount of room required*, to exhibit them to advantage

☞ Circulars, containing a view of the new Hall and the full regulations of the Committee, with special information, if required, may be had promptly, by addressing the undersigned, or the Institute's Agent, J. S. Selby, Baltimore, *post-paid.*

ADAM DENMEAD,
Chairman Com. on Exhibition for 1851.